

# **Review & Analysis**

## **Expanded Air Force Physical Fitness Battery: Muscle Strength, Muscle Endurance, and Flexibility Considered**

### **Volume II, Non-Copyrighted Literature Search Results**

**Prepared for: OFFICE FOR PREVENTION AND HEALTH  
SERVICES ASSESSMENT**

**ARMSTRONG LABORATORY  
BROOKS AIR FORCE BASE, TEXAS**

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30 October 1997

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<b>13. ABSTRACT (Maximum 200 Words)</b> This is the second volume of a three volume set. It contains pertinent non-copyrighted citations and abstracts extracted from various government databases. Volume I is the final report on issues relevant to the Air Force's consideration of strength and flexibility as additions to the Air Force Fitness Program and Volume III contains pertinent copyrighted citations extracted from commercial databases. A Table of Contents for the three-volume set may be found in Volume I. Requests for an updated literature search should be referred to: Crew System Ergonomics Information Analysis Center (CSERIAC), AL/CFH/CSERIAC Bldg 248, ATTENTION: Information Specialist, 2255 H Street, Wright-Patterson AFB, OH 45433-7022				
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## **NOTICE**

This report contains three volumes. Volume I is the final report of issues relevant to the Air Force's consideration of strength and flexibility as additions to the Air Force Fitness Program. Volume II contains pertinent non-copyrighted citations extracted from government databases, and Volume III contains pertinent copyrighted citations extracted from commercial databases. A Table of Contents for the three-volume set may be found in Volume I.

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**NON-COPYRIGHTED CITATIONS**  
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## **1. INTRODUCTION**

In support of the USAF Office for Prevention and Health Services Assessment, the Crew System Ergonomics Information Analysis Center (CSERIAC) conducted an extensive search of scientific literature to determine state-of-the-art issues and solutions related to the benefit to the Air Force of adding strength and flexibility to their fitness standard. This volume contains the literature search results from selected government databases.

## **2. DATABASES SEARCHED**

The following databases were searched and the results presented in this volume.

- Defense Technical Information Center (DTIC) Technical Report (TR)

## **3. ORDERING DOCUMENTS**

Most of the documents identified in this search can be obtained through local resources, such as city, university, or company libraries or through inter-library loan programs sponsored by these libraries. However, some of these documents may be available only through special organizations, such as the Defense Technical Information Center (DTIC), National Technical Information Service (NTIS), or other commercial document vendors.

### **3.1 Defense Technical Information Center (DTIC)**

DTIC is the central repository for documents resulting from research supported by the Department of Defense (DoD). DTIC maintains Technical Report (TR) and Work Unit Information Summary (WUIS) databases.

Documents from the DTIC TR database (including documents from the DTIC CD-ROM) are identified by an accession number that begins with "AD," such as AD-A123 456. Most of these documents are available through DTIC. Some of the documents may not be available through DTIC; however, the citations for these documents contain the necessary document acquisition information.

The DTIC WUIS database contains summaries of on-going research. Unlike the TR database, the WUIS database does not contain abstracts for documents that can be obtained through DTIC or any other source. Instead, most of these summaries will provide you with point-of-contact information for the principal investigator or contract monitor associated with a cited work unit.

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Reference and Retrieval Division (DTIC-BR)  
8725 John J. Kingman Road, Suite 0944  
Ft. Belvoir, VA 22060-6218

Telephone: (703) 767-8274 / DSN 427-8274  
1-800-CAL-DTIC (225-3842), menu selection 1  
FAX: (703) 767-9070 / DSN 427-9070  
Email: [msorders@dtic.mil](mailto:msorders@dtic.mil)  
<http://www.dtic.dla.mil/dtic/docorder.html>

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For Assistance: (703) 487-4679

Email Orders: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov).

<http://www.fedworld.gov/ntis/ntishome.html>

### **3.3 Crew System Ergonomics Information Analysis Center (CSERIAC)**

We recommend that you discuss potential document orders with your in-house or local technical information specialist. He or she will know the most appropriate method to place orders for documents identified in this report. If questions do arise, please feel free to contact the Crew System Ergonomics Information Analysis Center (CSERIAC) at the address below. Also, if you desire, we can provide you with a copy of the CSERIAC Catalog which contains a listing of the human factors-related publications distributed by CSERIAC.

AL/CFH/CSERIAC

2255 H Street, Bldg. 248

Wright-Patterson AFB, OH 45433-7022

Phone: (937) 255-4842

FAX: (937) 255-4823

Email: [cseriac@al.wpafb.af.mil](mailto:cseriac@al.wpafb.af.mil)

<http://www.dtic.mil/iac/cseriac/cseriac.html>

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## 5. NON-COPYRIGHTED LITERATURE RESULTS

### 5.1 Defense Technical Information Center (DTIC) Technical Reports (TR)

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-- PHYSICAL FITNESS  
-- EXERCISE (PHYSIOLOGY)  
-- EXERCISE (PHYSIOLOGY)  
-- - -AND  
-- PERFORMANCE TESTS  
-- .ACHIEVEMENT TESTS  
-- .APTITUDE TESTS  
-- .INTELLIGENCE TESTS  
-- .PSYCHOLOGICAL TESTS  
-- ..APTITUDE TESTS  
-- ..INTELLIGENCE TESTS  
-- ..PERSONALITY TESTS  
-- ..PROJECTIVE TECHNIQUES  
-- ..PSYCHOMOTOR TESTS  
-- ..TEST CONSTRUCTION(PSYCHOLOGY)  
-- ..WORD ASSOCIATION  
-- MILITARY TRAINING  
-- ....AIR FORCE TRAINING  
-- ....ARMY TRAINING  
-- ....MARINE CORPS TRAINING  
-- ....NAVAL TRAINING  
-- ....WAR GAMES  
-- TRAINING  
-- ...ADAPTIVE TRAINING  
-- ...FLIGHT TRAINING  
-- ...INDIVIDUALIZED TRAINING  
-- ...INDUSTRIAL TRAINING  
-- ....APPRENTICESHIP  
-- ...JOB TRAINING  
-- ...LEADERSHIP TRAINING  
-- ...MANAGEMENT TRAINING  
-- ...MILITARY TRAINING  
-- ....AIR FORCE TRAINING  
-- ....ARMY TRAINING  
-- ....MARINE CORPS TRAINING  
-- ....NAVAL TRAINING  
-- ....WAR GAMES  
-- ...RETRAINING  
-- ...TEACHING METHODS  
-- ....COMPUTER AIDED INSTRUCTION

-- ....PROGRAMMED INSTRUCTION  
-- ....TRAINING DEVICES  
-- .....FLIGHT SIMULATORS  
-- .....GUNNERY TRAINERS  
-- .....RADAR TRAINERS  
-- .....TEACHING MACHINES  
-- .....TRAINING FILMS

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\$PHYSICAL FITNESS  
\$EXERCISE (PHYSIOLOGY)  
AND  
?60ASSESSMENT  
?60%BENEFIT  
?60EVALUATION  
?60COMPARISON

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\$PHYSICAL FITNESS  
AND  
\$MUSCULAR STRENGTH  
\$FLEXIBILITY

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\$PHYSICAL FITNESS  
AND  
\$ENDURANCE(PHYSIOLOGY)

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\$PHYSICAL FITNESS  
AND  
\$STRENGTH(PHYSIOLOGY)

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**AD NUMBER:** P006914

**CORPORATE AUTHOR:** Air Force Academy Colorado Springs Co

**UNCLASSIFIED TITLE:** Airsickness Management And The Benefits Of Gyro-Fitness  
Training,

**PERSONAL AUTHORS:** Wittman, William T.; Mallery, Carl J.; Berger, Robert C.;  
Mastroianni, George R.; Schoen, Robert J.

**REPORT DATE:** Apr 17, 1992

**PAGINATION:** 5p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** This Article Is From 'Proceedings Of The Symposium On  
Psychology In The Department Of The Defense (13th) Held In Colorado On 15-17 April  
1992', AD-A253 006, P6-10.

**ABSTRACT:** This paper examined the role of gyro-fitness training in reducing or eliminating  
airsickness symptoms in military student pilots. A gyro-fitness training program was  
developed which allowed airsick cadets to experience motion stimulation and subsequent

motion desensitization without being in the actual flying environment. Strong anecdotal evidence suggested the program was helping students overcome airsickness. A formal analysis of the program reported here, suggests training may not be as effective as casual evidence would indicate. This finding has implications for both airsickness treatment and theory. The air force academy trains approximately 650 cadets a year in the t-41 flight screening program. T-41 is a 15 flight course (including a solo flight) conducted in cessna 172's. Currently we have a 2% washout rate due t thickness and more than 50% of the cadets experience some airsickness symptoms during training. Unfortunately, there seems to be no consistently successful screening technique to determine who is prone to airsickness or which individuals will experience the problem only transiently (dobie, 1989).

**DESCRIPTORS:**\*Training,\*Physical Fitness,\*Motion Sickness, Air Force, Cadets, Environments, Flight, Pilots, Rates, Signs And Symptoms, Students, Theory, Thickness, United States Air Force Academy.

**IDENTIFIERS:** Air Sickness, Component Reports.

**FIELDS AND GROUPS:** 6/10

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\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\*

**AD NUMBER:** F630416

**CORPORATE AUTHOR:** Wright Air Development Center Wright-Patterson AFB Oh

**UNCLASSIFIED TITLE:** Syllabus Of Crew Selection Techniques Development Program.

**REPORT DATE:** Dec, 1958

**PAGINATION:** 44p

**MONITOR ACRONYM:** SBI

**MONITOR SERIES:** AD-F630 416

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Includes Photographs Of Subjects Undergoing Testing For Project Mercury.

**ABSTRACT:** Headquarters ardc has established a requirement for the aero medical laboratory, wadc, to devise and validate the means by which reliable human subjects can be selected for extreme high altitude vehicles which will be flown on exacting missions. A further requirement is to determine the effects and advisability of preconditioning these subjects (such as physical exercise, low barometric pressure acclimatization, psycho-therapy, hypnotic suggestions, etc). To meet this headquarters ardc requirements, the chief of the aero medical laboratory has established a board of investigators to organize and expedite such a program. A disposition form dated 5 november 1958 from colonel j. P. Stapp, subject: 'crew selection techniques' delineates the purpose, organization, and responsibilities of this board of investigators.

**DESCRIPTORS:**\*Personnel Selection,\*Space Crews,\*Laboratory Tests, Crews, Flight Crews, Space Missions, Physical Fitness, Stress(Physiology), Thresholds(Physiology), Tolerances(Physiology), Psychological Tests, Psychology, Stress Testing, Performance Tests

**IDENTIFIERS:** High Altitude Missions, Crew Selection Techniques, Project Mercury, Sbi4

**LIMITATIONS (ALPHA):** ANNOUNCEMENT ONLY; NOT AVAILABLE FROM DTIC.

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\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\*

**AD NUMBER:** F250364

**CORPORATE AUTHOR:** Army Soldier Support Center Fort Benjamin Harrison In

**UNCLASSIFIED TITLE:** You And The Army Physical Readiness Test (Aprt).

**REPORT DATE:** Nov 04, 1983

**PAGINATION:** 21p

**MONITOR ACRONYM:** SBI

**MONITOR SERIES:** AD-F250 364

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** This Field Circular Expires 3 November 1986 Unless Sooner Rescinded Or Superseded.

**DESCRIPTORS:**\*Physical Fitness, Military Training, Training, Soldiers

**IDENTIFIERS:** Fc 21-450, Fit To Win, Pt(Physical Training), 1983ed, Aprt(Army Physical Readiness Test), Field Circular 21-450, Sbi4, 10 Oct 85

**LIMITATIONS (ALPHA):** ANOUNCEMENT ONLY; NOT AVAILABLE FROM DTIC. FOR AVAILABILITY SEE SOURCE.

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**\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\***

**AD NUMBER:** E501526

**CORPORATE AUTHOR:** Institute For Defense Analyses Alexandria Va

**UNCLASSIFIED TITLE:** Military Personnel Policy Regarding Advancement Requirements.

**PERSONAL AUTHORS:** Goldberg, Matthew S.; Horowitz, Stanley A.

**REPORT DATE:** Jan, 1992

**PAGINATION:** 25p

**REPORT NUMBER:** Ida-P-2566

**CONTRACT NUMBER:** MDA903-89-C-0003

**MONITOR ACRONYM:** IDA/HQ, SBI

**MONITOR SERIES:** 91-37086, AD-E501 526

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This paper is one in a series of studies concerned with identifying approaches to maintaining a strong military manpower capability during a period of declining budgets and force levels. Its focus is on up-or-out policy, which requires that military personnel either be promoted after a certain period of time in the service or leave the service. We found that surprisingly few individuals actually leave the military due to up-or-out policy. Instead, individuals are forced to switch from operational positions, which many prefer, to managerial positions. This policy may improve personnel flows, thereby enhancing promotion opportunities for the stronger performers. It has also been argued that older individuals lack the physical fitness required to continue in operational positions. Evidence for pilots does not support this hypothesis.

**DESCRIPTORS:**\*Military Personnel, Promotion(Advancement), Manpower, Policies, Personnel Management, Military Budgets, Military Training, Operational Readiness, Physical Fitness, Performance(Engineering).

**IDENTIFIERS:** Lpn-Ida-T-L7-798, Sbi1, Fiscal Year 92, Experience, Yos(Year Of Service), Hyt(High Year Of Tenure), Up Or Out Policies, Military Manpower, Military Policies.

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***FIELDS AND GROUPS:*** 5/9

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***AD NUMBER:*** C038495

***CORPORATE AUTHOR:*** Advisory Group For Aerospace Research And Development Neuilly-Sur-Seine (France)

***UNCLASSIFIED TITLE:*** Medical Selection And Physiological Training Of Future Fighter Aircrew. Conference Proceedings Of The Aerospace Medical Panel Symposium Held In Athens, Greece On 25-26 April 1985. Supplement.

***REPORT DATE:*** Dec, 1985

***PAGINATION:*** 30p Media Cost: \$ 6.00 Price Code: Aa

***REPORT NUMBER:*** Agard-Cp-396-Suppl

***REPORT CLASSIFICATION:*** RESTRICTED-NATO

***ABSTRACT:*** The conference proceedings reviewed and made recommendations with respect to the medical selection and physiological and physical training of pilots who are to operate future fighter aircraft. The relevant characteristics of a proposed usaf fighter and the european fighter aircraft were discussed and used as the basis for the selection and training considerations. The contributors drew upon the experience of the medical selection of pilots for present fighter aircraft. The cardiovascular, vision and vertebral column aspects of medical selection and monitoring are considered in depth and recommendations made as to the methods which should be employed in the future. The influence of physical fitness upon pilot performance is addressed. The philosophy and practice of physiological training of aircrew is reviewed with emphasis on the value of the human centrifuge in teaching g protective maneuvers.

***DESCRIPTORS:***\*Personnel Selection,\*Air Force Training,\*Aviation Medicine,\*Pilots, Flight Crews, Air Force Personnel, Jet Fighters, Physical Fitness, Visual Perception, Cardiovascular System, Spinal Column, Teaching Methods, Centrifuges, Acceleration Tolerance, Protection, Protective Equipment, Utilization, Nato

***IDENTIFIERS:*** Medical Training, Nato Furnished

***LIMITATIONS (ALPHA):*** DISTRIBUTION: DTIC USERS ONLY.

***FIELDS AND GROUPS:*** 5/6, 5/9, 6/5

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***AD NUMBER:*** B969338

***CORPORATE AUTHOR:*** School Of Aviation Medicine Randolph AFB Tx

***UNCLASSIFIED TITLE:*** Physical Training Program For Convalescing Patients: Pulse Reaction To Performing Step-Up Exercise On Benches Of Different Heights.

***PERSONAL AUTHORS:*** Elbel, Edwin R.; Green, Earl L.

***REPORT DATE:*** Jan 25, 1945

***PAGINATION:*** 9p Media Cost: \$ 6.00 Price Code: Aa

***REPORT CLASSIFICATION:*** UNCLASSIFIED

***DESCRIPTORS:***\*Exercise(Physiology),\*Convalescence, Physical Fitness, Training, Patients, Pulse Rate, Bench Tests, Height, Climbing.

***IDENTIFIERS:*** U/A Reports, X-18482.

***LIMITATIONS (ALPHA):*** DISTRIBUTION: DTIC USERS ONLY.

***FIELDS AND GROUPS:*** 6/4, 6/5, 6/10

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**AD NUMBER:** B969337

**CORPORATE AUTHOR:** School Of Aviation Medicine Randolph AFB Tx

**UNCLASSIFIED TITLE:** The Effect Produced On The Scores Of The Aaf Physical Fitness Test By The Wearing Of The Fatigue Uniform.

**PERSONAL AUTHORS:** Karpovich, Peter V.

**REPORT DATE:** Oct 04, 1943

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Physical Fitness, Exercise(Physiology), Performance(Human), Uniforms, Army Personnel, Scoring, Performance Tests.

**IDENTIFIERS:** Running, U/A Reports, X-18486.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** B962949

**CORPORATE AUTHOR:** School Of Aviation Medicine Randolph AFB Tex

**UNCLASSIFIED TITLE:** Analysis Of The Safety Factor In The Use Of Blocks In The Indoor Shuttle-Run.

**PERSONAL AUTHORS:** Weiss, Raymond A.

**REPORT DATE:** Apr 02, 1945

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Wounds And Injuries, Strains(Biology), Physical Fitness, Recreation, Performance Tests, Stress(Physiology), Hazards, Safety.

**IDENTIFIERS:** Starting Blocks, Running, Indoor Tracks, U/A Reports, X-18745.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/5, 5/9

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**AD NUMBER:** B960204

**CORPORATE AUTHOR:** Bellarmine-Ursuline Coll Louisville Ky

**UNCLASSIFIED TITLE:** The Influence Of Social And Personality Factors On Efficiency Of Physical Performance.

**PERSONAL AUTHORS:** Voor, Joseph H. ;

**REPORT DATE:** Dec 31, 1972

**PAGINATION:** 29p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** DADA17-68-C-8042

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:** Contraction, Muscles, Performance(Human), Personality, Physical Fitness, Skills, Training

**IDENTIFIERS:**\*Social Psychology,\*Personality, Electromyography, Physical Fitness, Performandce(Human), Fatigue(Physiology), Army Training, U/A Reports

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COMMANDING GENERAL, ARMY MEDICAL RESEARCH AND DEVELOPMENT  
COMMAND, FORT DETRICK, FREDERICK, MD 20701-5012.

**FIELDS AND GROUPS:** 5/8

\*\*\*\*\*

**AD NUMBER:** B215337

**CORPORATE AUTHOR:** National Air Intelligence Center Wright-Patterson AFB Oh

**UNCLASSIFIED TITLE:** The Spinal Column: Selection And Fitness Of Future Combat  
Aircraft Pilots,

**PERSONAL AUTHORS:** Metges, P. J.; Flageat, J.; Auffret, R.; Delahaye, R. P.; Vieilleford, H.

**REPORT DATE:** Sep 20, 1996

**PAGINATION:** 10p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Naic-Id(Rs)T-0506-96

**MONITOR ACRONYM:** XC

**MONITOR SERIES:** NAIC\*

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Partially Edited Machine Trans. Of Agard Cp- 396 (France), 7p,  
1985.

**ABSTRACT:** With regard to the spine, the new generations of combat aircraft are characterized by the possibility of reaching strong, instantaneous and prolonged accelerations. In order to give pilots the optimum capabilities for obtaining visual information, the spinal column retains its mobility and becomes vulnerable in certain circumstances. Organic lesions can occur in this area during flight. Their prevention in order to ensure air safety involves 3 elements: - rigid selection, which is based on the clinical radiological examination of the spine and during admission, the application of the standard aptitude test for pilots of combat aircraft with the minimum adaptations, among other things, in france, - technical advances related to making the helmet lighter, for example, - compulsory physical training as part of a healthy lifestyle. This training must be harmonious, reasonable and not too unnecessarily perfectionistic to be regularly followed.

**DESCRIPTORS:**\*Aviation Safety,\*Medical Examination,\*Spinal Column, Optimization,  
Military Aircraft, Training, Acceleration, Pilots, France, Physical Fitness, Vision, Combat  
Forces, Rigidity, Selection, Aptitude Tests, Lesions, Helmets, Radiology.

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PATTERSON AFB, OH 45433.

**FIELDS AND GROUPS:** 1/2, 6/5

\*\*\*\*\*

**AD NUMBER:** B204476

**CORPORATE AUTHOR:** Civil Aeronautics Administration Washington Dc

**UNCLASSIFIED TITLE:** A Factor Analysis Of Some Cardiovascular- Respiratory Variables  
With Particular Reference To The Schneider And The Mccurdy-Larson Tests,

**PERSONAL AUTHORS:** Larson, Leonard A.

**REPORT DATE:** Jul, 1943

**PAGINATION:** 34p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XD

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purposes of this study are: (1) to analyze selected cardiovascular respiratory variables for their principal components and (2) to determine the physiological characteristics of 10 selected cardiovascular test index scores on the basis of the isolated factors. Nineteen cardiovascular-respiratory measures were obtained on 146 men majoring in health and physical education. Groups of these were combined into 10 cardiovascular tests batteries. The measures on the 19 relatively independent variables and 10 combined batteries were studied by means of factor analysis techniques and analyzed in relation to earlier findings in physiological research. There were revealed 8 primary factors: (1) pulse pressure. (2) pulse rate response to exercise in relation to normal. (3) pulse rate response to exercise. (4) pulse pressure in response to postural change. (5) diastolic pressure and changes with respect to body position. (6) respiratory function. (7) blood pressure response to changes in position. (8) systolic pressure.

**DESCRIPTORS:**\*Respiratory System,\*Cardiovascular System, Functions, Performance Tests, Isolation, Pulse Rate, Pulses, Response, Pressure, Indexes, Human Body, Physical Fitness, Scoring, Factor Analysis, Blood Pressure, Audio Tones, Posture(Physiology).

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**FIELDS AND GROUPS:** 6/4

\*\*\*\*\*

**AD NUMBER:** B196353

**CORPORATE AUTHOR:** Defense Intelligence Agency Washington Dc

**UNCLASSIFIED TITLE:** Physical Training Of The Soviet Soldier.

**PERSONAL AUTHORS:** Foley, David J.; Evans, Bill

**REPORT DATE:** Apr, 1978

**PAGINATION:** 46p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ddb-2680-48-78

**MONITOR ACRONYM:** XI

**MONITOR SERIES:** DIA

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Military Forces(United States),\*Health,\*Stress(Physiology),\*Physical Fitness, Ussr, Combat Effectiveness, Training, Army Personnel, Military Doctrine, Battlefields, Attack, Youth.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOVT AGENCIES ONLY; FOREIGN GOVT. INFO.; 14 FEB 95. OTHER REQUESTS SHALL BE REFERRED TO DEFENSE INTELLIGENCE AGENCY, ATTN: DB-1B5, WASHINGTON, DC 20301.

**FIELDS AND GROUPS:** 6/4, 5/9, 15/1

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**AD NUMBER:** B192949

**CORPORATE AUTHOR:** Air Proving Ground Center Eglin AFB Fl

**UNCLASSIFIED TITLE:** Employment And Suitability Test Of Apprentice Organizational Supply Specialist Graduates Of Ttaf Course Number Ab64131.

**REPORT DATE:** Jul 31, 1956

**PAGINATION:** 19p Media Cost: \$ 6.00 Price Code: Aa



**REPORT NUMBER:** Apg/Csc/1113-A

**MONITOR ACRONYM:** XC

**MONITOR SERIES:** APGC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Job Training,\*Air Force Training, Physical Fitness, Test And Evaluation, Military Training.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 5/9, 15/1

\*\*\*\*\*

**AD NUMBER:** B188026

**CORPORATE AUTHOR:** North Atlantic Treaty Organization Brussels (Belgium)

**UNCLASSIFIED TITLE:** Final Report And Resource Manual On Military Physical Training. Panel 8 On The Defence Applications Of Human And Biomedical Sciences. Research Study Group 17 On Biomedical Aspects Of Military Training.

**REPORT DATE:** Jul 18, 1994

**PAGINATION:** 269p Media Cost: \$ 11.00 Price Code: Ac

**REPORT NUMBER:** Ac/243(Panel 8)Tr/16

**MONITOR ACRONYM:** X5

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** In order to produce the largest fitness gain (or increase in physical performance) in the shortest possible training time, military physical training should strictly adhere to the established principles of overload, specificity and reversibility. These principles are based on an understanding of the body's physiological responses and adaptations to exercise. The ultimate fitness level to be achieved is the result of a combination of the training programme itself plus related factors which include gender, prior level of fitness, age, and genetic makeup. All of these factors must be taken into account in predicting the outcome of the training of a particular individual or group, or the reciprocal, in designing a programme to achieve a particular level of fitness for performance. Physical training, physical fitness, aerobic fitness, muscle strength, muscle endurance, training specificity, musculoskeletal injuries, injury prevention, training potential

**DESCRIPTORS:**\*Physical Fitness,\*Military Training, Adaptation, Gain, Genetics, Muscles, Overload, Prevention, Response, Time, Training, Wounds And Injuries, Nato, Exercise(Physiology).

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 15/1, 5/9, 6/4

\*\*\*\*\*

**AD NUMBER:** B183934

**CORPORATE AUTHOR:** North Atlantic Treaty Organization Brussels (Belgium)

**UNCLASSIFIED TITLE:** Executive Summary Of The Technical Report On Psychological Support For Military Personnel (Panel 8 On The Defence Applications Of Human And Bio-Medical Sciences).

**REPORT DATE:** Apr 25, 1994

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ac/243-N/398

**MONITOR ACRONYM:** X5

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Nato research study group (rsg) 22 'psychological support for military personnel' was developed out of the former research study group 10 'psychological fitness', which also was a subgroup of ac 243/8 'defense applications of human and biomedical sciences.' rsg 10 on psychological fitness (the capability to withstand combat stress; the maintenance and enhancement of performance in critical military tasks).

**DESCRIPTORS:**\*Psychological Tests,\*Military Personnel, Nato, Physical Fitness, Measurement, Military Exercises, Tolerances(Physiology), Stress(Psychology), Stress(Physiology).

**IDENTIFIERS:** Pe(Psychological Fitness).

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 5/8, 5/9

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**AD NUMBER:** B167068

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks

**UNCLASSIFIED TITLE:** Peaking For Battle: Tactical Command On The Eve Of Combat.

**PERSONAL AUTHORS:** Hart, Edward A.

**REPORT DATE:** May 04, 1992

**PAGINATION:** 174p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Battles,\*Leadership, Army Personnel, Assault, Battlefields, Behavioral Sciences, Case Studies, Control, Division, Enemy, History, Models, Organizations, Physical Fitness, Test And Evaluation, Theory, Theses, Training, Value, Warfare.

**IDENTIFIERS:** Battle Leadership, Tactical Command, Tactical Leaders, Tactical Leadership, First Marine Division, Peleliu, World War Ii,\*Military History.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; PROPRIETARY INFO.; 5 JUN 92. OTHER REQUESTS SHALL BE REFERRED TO HQS, CAC AND FORT LEAVENWORTH, ATTN: ATZL-GOP-SE, FORT LEAVENWORTH, KS 66027-5070.

**FIELDS AND GROUPS:** 5/1, 5/6, 15/6, 14/2

\*\*\*\*\*

**AD NUMBER:** B162210

**CORPORATE AUTHOR:** Armed Forces Medical Intelligence Center Fort Detrick Frederick Md

**UNCLASSIFIED TITLE:** There Is Not Enough Time For A Careful Evaluation (Fuer Eine Sorgfaeltige Begutachtung Fehlt Die Zeit),

**PERSONAL AUTHORS:** Mahlberg, F. A.

**REPORT DATE:** Feb 27, 1992

**PAGINATION:** 10p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Afmic-Ht-037-92

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** AFMIC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Trans. Of Wehrausbildung (Germany) N1 P71- 72 1989.

**DESCRIPTORS:** Mental Health, Military Forces(United States), Physical Fitness, Physicians, State Of The Art.

**IDENTIFIERS:** \*Physicians, \*Military Forces(Foreign), \*West Germany, \*Selection(Personnel), Translations, German Language, Medical Examinations.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; COPYRIGHT, PROPRIETARY INFO.; 27 FEB 92. OTHER REQUESTS SHALL BE REFERRED TO AFMIC-ISD, FORT DETRICK, FREDERICK, MD 21702-5004.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** B161826

**CORPORATE AUTHOR:** Eai Corp Abingdon Md

**UNCLASSIFIED TITLE:** Acclimatization And Adaptation For Troops In A Mission-Oriented Protective Posture (Mopp).

**PERSONAL AUTHORS:** Gamble, George; Metz, Dennis; Martin, Diane; Nicht, Kevin; Hutton, Matthew

**REPORT DATE:** Oct, 1991

**PAGINATION:** 64p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** DPG/JOD, XA

**MONITOR SERIES:** 92/001, DPG/JOD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:** Acclimatization, Chemicals, Environments, Instructions, Literature Surveys, Military Personnel, Missions, Physical Fitness, Posture(General), Precision, Protection, Training.

**IDENTIFIERS:** Lpn-Usatecom-8-Co-210-049-118, Pe65710a, As049, \*Chemical Warfare(Cw), Troop Performance, Acclimatization, Adaptation Heat Stress, Cold Stress, \*Physical Fitness, Cognitive Task Performance, Mission-Oriented Protective Posture (Mopp) Gear.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; OCT 91. OTHER REQUESTS SHALL BE REFERRED TO STEDP-JOD, DUGWAY PROVING GROUND, UT 84022-5000.

**FIELDS AND GROUPS:** 15/6.3, 6/3

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**AD NUMBER:** B157277

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** Improving The Material Training Base,

**PERSONAL AUTHORS:** Antonov, Antony

**REPORT DATE:** Nov 02, 1990

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-0311-90

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** FSTC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Voenna Tekhnika (Bulgaria) V23 N10 P17-18 1989.

**ABSTRACT:** The introduction of achievements from the scientific- technical revolution into the area of weapons and combat equipment, as well as the complex and contradictory international situation, both require that personnel in the army possess highly professional training, creative thinking, independence in carrying out assigned missions, lasting practical skills in operating weapons and equipment, and physical endurance. Qualitative changes in armored and motor--vehicle equipment place new demands on methods for employing them in combat, on the methodology for troop training, and on the material training base (uchebno-materialna baza- -umb). All this requires that the existing material training base be improved continuously, and that qualitative criteria be raised during the training process. The commanders and party-and-political elements of the unit in which officer tatarov is serving constantly devote the necessary attention to solving these problems. Not long ago, a new tank-simulator complex, a radioelectronic room for tank driving, a tactical room, and physical training complex all opened their doors. Bulgavia.

**DESCRIPTORS:**., Doors, International, Materials, Military Equipment, Military Personnel, Physical Fitness, Space(Room), Training, Warfare, Weapons.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JAN 88. OTHER REQUESTS SHALL BE REFERRED TO U.S. ARMY INTELLIGENCE AGENCY, FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH ST, NE, CHARLOTTESVILLE, VA 22901-5396.

**FIELDS AND GROUPS:** 15/6

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**AD NUMBER:** B151244

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** Improving The Training Equipment Base,

**PERSONAL AUTHORS:** Antonov, Antony

**REPORT DATE:** Oct 10, 1990

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-0226-90

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** FSTC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Voenna Tekhnika (Bulgaria), V23 N10 P17-18, 1989.

**ABSTRACT:** Qualitative changes in armored tanks and automobile equipment have imposed the need for new research into methods for their use in combat, methods for troop training and the training equipment base (umb). This requires the constant improvement of the existing umb and an increase in the quality criteria in the training progress accomplished. The commanders and political party agencies in the units where officer tatarov served always paid the attention to solving such problems. Soon the doors were opened to a new tank training complex, a radio electronic classroom for tank driving, a tactical classroom, and a physical culture complex.

**DESCRIPTORS:**., Armor, Culture, Doors, Military Personnel, Passenger Vehicles, Physical Properties, Quality, Schools, Tanks(Combat Vehicles), Training, Training Devices.

**IDENTIFIERS:** Omb(Training Equipment Base), Bulgarian Language, Tanks/Combat Vehicles, Vehicles, Training, Army Personnel, Warfare, Methodology Training, Training Films,

Training Management, Models, Simulation Devices, Communism, Electronics, Military Research, Political Parties, Military Tactics, Physical Fitness, Translations, Bulgaria..

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JAN 88. OTHER REQUESTS SHALL BE REFERRED TO U.S. ARMY INTELLIGENCE AGENCY, FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH STREET, NE, CHARLOTTESVILLE, VA 22901-5396.

**FIELDS AND GROUPS:** 5/6, 19/3

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**AD NUMBER:** B148934

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** The Championship Is Not Far Off: The Ussr Amateur Helicopter Team Participates In The 6th World Championship In Paris,

**PERSONAL AUTHORS:** Varichenva, Natalya

**REPORT DATE:** Jul 19, 1990

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-0098-90

**MONITOR ACRONYM:** XF

**MONITOR SERIES:** FSTC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Kryl,Ya Rodiny (Ussr) N6 P14-15 1989.

**ABSTRACT:** In september the ussr's helicopter sport team will take part in the VI world championship, which will take place in france. The flight area is in the vicinity of paris. The first assembly for training (general physical training) of the team was held in february. Eight crews were in the training group; five were to compete. Sportsmen from the usa, frg, england, france, belgium, poland, italy and spain are to take part in the world championship. Obviously, each country will not be represented by a full complement, but the growing number of participants is gratifying. The popularity of helicopter sport is on the rise. Keywords: russian translations. (sdw)

**DESCRIPTORS:**\*Helicopters,\*Teams(Personnel), Assembly, Belgium, Flight, France, Great Britain, Italy, Physical Fitness, Poland, Recreation, Russian Language, Spain, Training, Translations, Ussr.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JAN 88. OTHER REQUESTS SHALL BE REFERRED TO US ARMY INTELLIGENCE AGENCY, FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH STREET NE, CHARLOTTESVILLE, VA 22901-5396.

**FIELDS AND GROUPS:** 5/6, 1/3.1

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**AD NUMBER:** B148527

**CORPORATE AUTHOR:** Foreign Technology Div Wright-Patterson AFB Oh

**UNCLASSIFIED TITLE:** Scientific Symposium (Selected Articles).

**REPORT DATE:** Jul 24, 1990

**PAGINATION:** 81p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ftd-Id(Rs)T-1070-89

**MONITOR ACRONYM:** XF

**MONITOR SERIES:** FTD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Trans. Of Medycyna Lotnicza (Poland) N1(102) P12-56 1989.

**ABSTRACT:** Contents: loss of consciousness - the effect of acceleration over the +gz axis in new-generation aircraft; physical training and hygienic conditions affecting human tolerance to accelerations; significance of isometric training in improvement of g-tolerance in the +gz axis; circulatory system loading under actual flight conditions; selected problems of aviation psychophysiology; rachialgic syndromes in pilots. Polish translations. (jhd)

**DESCRIPTORS:**\*Acceleration Tolerance,\*Aviation Medicine, Aeronautics, Cardiovascular System, Consciousness, Flight, Hygiene, Losses, Physical Fitness, Pilots, Poland, Polish Language, Psychophysiology, Signs And Symptoms, Symposia, Training, Translations.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; COPYRIGHT, SPECIFIC AUTHORITY; 24 JUL 90. OTHER REQUESTS SHALL BE REFERRED TO FTD/STINFO. WRIGHT-PATTERSON AFB, OH 45433.

**FIELDS AND GROUPS:** 6/10

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\*\*\*\* **EXPORT CONTROL** \*\*\*\*

**AD NUMBER:** B146272

**CORPORATE AUTHOR:** Operational Technologies Corp San Antonio Tx

**UNCLASSIFIED TITLE:** Initial Development Of The Leap Biographic Survey For Use In Selection And Classification.

**PERSONAL AUTHORS:** Appel, Victor H.; Grubb, Paul D.; Shermis, Mark D. ; Watson, Thomas W.; Cole, Richard W.

**REPORT DATE:** Jun, 1990

**PAGINATION:** 36p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** F41689-87-D-0012

**MONITOR ACRONYM:** AFHRL

**MONITOR SERIES:** TR-90-19

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Prepared In Cooperation With Victor Appel And Associates, Austin, Tx.

**ABSTRACT:** This report describes the steps taken in the development of the initial version of the leadership effectiveness assessment profile (leap 0-1). The leap 0-1 is designed to augment existing air force selection and classification instruments, particularly in the selection of officers among officer training school applicants. The instrument measures seven non-intellective constructs: leadership, managership, adaptive behavior, physical fitness, achievement orientation, and retention propensity. To develop the leap 0-1, these seven constructs were successively decomposed into 13 subconstructs, 30 behavioral elements and, finally, 91 discrete behaviors. Using those behaviors as the basis, pool of 192 items focusing on events or activities in which the respondents may have engaged during their collegiate or high school years. From this pool of items, the best 102 were selected for inclusion in leap 0-1. Field-testing and subsequent validation of the leap 0-1 is reserved for later phases of this effort. Keywords: surveys; performance tests; leadership/managership;

air force personnel; operational effectiveness; retention(general); selection; classification.  
(cp)

**DESCRIPTORS:**\*Leadership,\*Officer Personnel,\*Performance Tests, Adaptive Systems, Air Force, Air Force Personnel, Behavior, Classification, Instrumentation, Operational Effectiveness, Orientation(Direction), Physical Fitness, Retention(General), Selection, Surveys, Validation.

**IDENTIFIERS:** Pe63227f, Wuafhrl29220202, Export Control, Afoqt(Air Force Officer Qualifying Test), Leap(Leadership Effectiveness Assessment Profile).

**LIMITATIONS (ALPHA):** DISTRIBUTION: FURTHER DISSEMINATION ONLY AS DIRECTED BY AFHRL/MOA. BROOKS AFB, TX 78235-5601, JUN 90 OR HIGHER DOD AUTHORITY. THIS DOCUMENT CONTAINS EXPORT-CONTROLLED TECHNICAL DATA.

**FIELDS AND GROUPS:** 5/8, 15/1

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**AD NUMBER:** B145790

**CORPORATE AUTHOR:** North Atlantic Treaty Organization Brussels (Belgium)

**UNCLASSIFIED TITLE:** Defence Research Group Panel 8 On The Defence Applications Of Human And Bio-Medical Sciences. Research Study Group 10 On Psychological Fitness. Volume 3. The Analysis Of The Psychological Components Of Combat Stress And The Subsequent Derivation Of The Basic Structure Of A General Nato Test For Measuring Psychological Fitness.

**REPORT DATE:** Oct, 1987

**PAGINATION:** 291p Media Cost: \$ 11.00 Price Code: Ac

**REPORT NUMBER:** Ac/243(Panel 8)Rsg.10)D/7-Vol-3

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Research study group 10 (rsg.10) on psychological fitness belongs to the drg panel 8 on defence applications of human and bio-medical sciences, which is broken into two phases. Phase I (from the beginning of 1983 to mid-1984) dealt with the analysis and evaluation of different methodological approaches in the field of measuring psychological fitness (pf), with specific emphasis on their applicability in the armed forces. Rsg.10 thus has to study problems associated with the assessment of pf for military tasks. Phase II (from mid-1984 to mid-1986) dealt with the consideration of ways of analyzing jobs in order to assess the stress imposed on the operator, with a view to devising methods of selection and training which would maximize the operator's pf. In accordance with the terms of reference (tor) the work of rsg.10 related to the validation of selection and training procedures by means of suitable criteria of job and job-related performance. In this context, consideration was to be given to the development of a general nato test for measuring pf and its subsequent standardization for different fields of application. Keywords: psychological tests; physical fitness, military personnel. Stress(psychology). (cp)

**DESCRIPTORS:**\*Biomedicine,\*Physical Fitness,\*Psychological Tests, Jobs, Military Personnel, Nato, Performance(Human), Selection, Stress(Psychology), Stresses, Test And Evaluation, Training, Validation, Warfare.

**IDENTIFIERS:** Rsg.10(Research Study Group 10).

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 5/8, 6/10

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**AD NUMBER:** B140727

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** Urgent Problems Of The Psychology Of Physical Conditioning And Sport In The Ussr,

**PERSONAL AUTHORS:** Mel'nikov, V. M.

**REPORT DATE:** Dec 07, 1989

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-1004-88

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Psikhologicheskii Zhurnal (Ussr) V9 N3 P72-77, 1988.

**ABSTRACT:** The fundamental stages for the development of the psychology of physical training and sports (pfs) in the ussr and its new directions and future problems are examined. The necessity to qualitatively improve the psychological preparation of the teacher the specialist of physical training and sports, is emphasized. The article concentrates on immediate directions for the scientific investigation of pfs. Keywords: psychological preparation; formulating the sports personality; training; sports. Russian translations. (sdw)

**DESCRIPTORS:**\*Physical Fitness,\*Psychology, Orientation(Direction), Personality, Preparation, Recreation, Russian Language, Specialists, Training, Translations, Ussr.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JAN 88. OTHER REQUESTS SHALL BE REFERRED TO THE U.S. ARMY INTELLIGENCE AGENCY, FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH ST., N.E., CHARLOTTESVILLE, VA 22901-5396.

**FIELDS AND GROUPS:** 6/4, 5/8, 5/9

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**AD NUMBER:** B140173

**CORPORATE AUTHOR:** North Atlantic Treaty Organization Brussels (Belgium)

**UNCLASSIFIED TITLE:** Panel On The Defence Applications Of Human And Bio-Medical Sciences. Research Study Group On Psychological Fitness. Volume 1.

**REPORT DATE:** Dec, 1984

**PAGINATION:** 123p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Nato-Ac/243(Panel Viii)D/98

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** See Also Volume 2, AD-B140 174.

**ABSTRACT:** Psychological fitness (pf) refers to the short or long- term factors leading to the ability to accomplish a military task at a given moment, given the necessary skills, aptitude, and training. In this context it could be said that psychological fitness is a condition which is embedded in and expressed by longer- lasting psychological and biological characteristics. It leads to attitudes, intentions, and the activation of task-relevant behaviour and the elimination of non-relevant behaviour under difficult circumstances (e.g. physical aggression, extreme temperatures, psychological hostile environment, sleep deprivation, lack of nutrition) in order to accomplish military tasks in a way being appropriate to skills within the frame of aptitude and training. (sdw)



**DESCRIPTORS:**\*Physical Fitness,\*Psychology, Attitudes(Psychology), Attack, Biomedicine, Enemy, Military Training, Environments, Frames, Long Range(Time), Nutrition, Physical Properties, Range(Extremes), Short Range(Time), Sleep Deprivation, Temperature.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 5/9, 6/4, 5/8

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**AD NUMBER:** B135255

**CORPORATE AUTHOR:** Stockholm Univ (Sweden) Dept Of Psychology

**UNCLASSIFIED TITLE:** Perceptual And Physiological Comparisons Between Marathon Runners And Sprinters During Cycle Ergometer Exercise,

**PERSONAL AUTHORS:** Ceci, Ruggero; Ljunggren, Gunilla

**REPORT DATE:** Dec, 1988

**PAGINATION:** 19p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** 686

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Three groups of athletes (i.e. four male marathon runners, four male sprinters and four female marathon runners) were compared on a bicycle ergometer regarding differences in perceived exertion (roe), perceived aches and pain in the legs (rlp), heart rate (hr) and blood lactate (bl). Fiber type composition in m. Vastus lateralis and physical training anamnestics were used as means of classification between these subgroups. The study also included two different control groups, four male and four female subjects, all physically active. All twenty subjects performed a bicycle exercise test with stepwise increase of power levels from 0 watt (w) by steps of 40 w and so fourth until physical exhaustion (voluntary maximal exercise). Results showed that roe and rlp could be described by monotonously increasing power functions, according to a new category scale with ratio properties. Hr and bl growth could also be analysed with similar methods by the use of linear regression analysis and mathematical power functions, respectively. (sdw)

**DESCRIPTORS:**\*Exercise(Physiology),\*Stress(Physiology), Blood, Composition(Property), Control, Cycles, Ergometers, Fatigue(Physiology), Females, Fibers, Functions, Functions(Mathematics), Group Dynamics, Heart Rate, Lactates, Legs, Linear Regression Analysis, Males, Pain, Physical Fitness, Physical Properties, Power, Power Levels, Ratios, Test And Evaluation, Training, Mathematical Analysis.

**IDENTIFIERS:** Marathon Running, Runners, Sprinters.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** B132603

**CORPORATE AUTHOR:** Army Development And Employment Agency Fort Lewis Wa

**UNCLASSIFIED TITLE:** Soldier Nutrition And Performance Appraisal Report.

**PERSONAL AUTHORS:** Dukes, Michael W.; Cooke, Annetta J.; Plymate, Stephen R.; Martinet, Brian

**REPORT DATE:** Jul 06, 1988

**PAGINATION:** 218p Media Cost: \$ 11.00 Price Code: Ac

**REPORT NUMBER:** Adea-Ar-88-A-216

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Prepared In Collaboration With Bdm Management Services Co.  
**DESCRIPTORS:**\*Nutrition,\*Aptitude Tests,\*Performance(Human), Army Facilities, Army Personnel, Blood, Blood Chemistry, Consumption, Food Deprivation, Glucose, Insulin, Level(Quantity), Meals, Medical Services, Pulse Rate, Questionnaires, Rates, Regeneration(Physiology), Sampling, Statistical Analysis, Time, Weight, Physical Fitness.  
**IDENTIFIERS:** Pe63324a.  
**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 6 JUL 88. OTHER REQUESTS SHALL BE REFERRED TO COMMANDER, ARMY DEVELOPMENT AND EMPLOYMENT AGENCY, FORT LEWIS, WA 98433-5000.  
**FIELDS AND GROUPS:** 6/8, 5/9

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**AD NUMBER:** B130867  
**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va  
**UNCLASSIFIED TITLE:** The Effect Of Diet And Training On Development And Nutritional Condition Of Soldiers,  
**PERSONAL AUTHORS:** Pavlica, Milan; Sovtic, Predrag; Bevc, Zdravko; Paunovic, Petar; Cir, Janko  
**REPORT DATE:** Feb 09, 1989  
**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa  
**REPORT NUMBER:** Fstc-Ht-0607-88  
**REPORT CLASSIFICATION:** UNCLASSIFIED  
**SUPPLEMENTARY NOTE:** Unedited Trans. Of Vojnosanitetski Pregled (Yugoslavia) V42 N5 P328-332 1985.

**ABSTRACT:** This article provides the results of research on energy values of daily meals, energy consumption, development, nutrition and physical capacity of 97 soldiers belonging to one mechanized armored unit. Testing was done over seven days after the recruits reported for service and over seven days after they finished basic training (stages I and ii). Average energy values of food consumption were 12.28 mega-joules in stage I measurement, 12.90 mega-joules in stage ii. The energy output at the same stages were 12.50 and 12.44 megajoules respectively, so that the energy balance was virtually even. The values of somatometric measurements and results of maximum consumption of oxygen indicate the positive effect of diet and training on the development, nutritional condition and physical capacity of the soldiers. Keywords: translations, yugoslavia, serbocroatian language. (aw)

**DESCRIPTORS:**\*Diet,\*Nutrition,\*Army Training,\*Physical Fitness, Armor, Army Personnel, Balance, Daily Occurrence, Energy, Energy Consumption, Food Consumption, Meals, Measurement, Mechanization, Military Training, Output, Oxygen, Recruits, Translations, Value, Yugoslavia.  
**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JAN 88. OTHER REQUESTS SHALL BE REFERRED TO US ARMY INTELLIGENCE AGENCY, FSTC, 220 7TH ST., NE, CHARLOTTESVILLE, VA 22901-5396.  
**FIELDS AND GROUPS:** 6/4, 5/9, 6/8

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**AD NUMBER:** B124626

**CORPORATE AUTHOR:** Hoofdgroep Voeding En Voedingsmiddelen Tno Zeist (Netherlands)

**UNCLASSIFIED TITLE:** Longitudinaal Onderzoek Naar De Voedingsgezondheid En Het Fysiek Prestatievermogen Van Vrijwillig Dienende Militairen Van De Koninklijke Landmacht (Longitudinal Investigation Of Eating Behavior/Physical Performance Capabilities Of Volunteers In Royal Dutch Army. E. Changes In Nourishment, Blood Pressure, Physical Performance, And Life-Style During Period September 1980-May 1984),

**PERSONAL AUTHORS:** Egger, R. J.; Beek, E. J. Van Der; Hulshof, K. F.; Kistemaker, C.

**REPORT DATE:** Dec, 1987

**PAGINATION:** 52p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** V 87.439/240059

**MONITOR ACRONYM:** TDCK

**MONITOR SERIES:** 88-0269

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Text In Dutch; Summary In English.

**ABSTRACT:** In the period of 1980-1981 we executed a prospective study on food composition, body composition, iron status, serum cholesterol, smoking habits and physical fitness of junior regular non-commissioned army officers. In this study, conducted at the royal military school, 17-19-year old students of the september 1980 draft participated. The aim of the study was to gain an insight into the trend of health characteristics of the students during their military training and education. On account of some less favourable findings, the study was repeated in 1984 with the same group of subjects in order to detect a possible trend following their military training period. Food consumption revealed a decrease in energy consumption in the course of the study, which may be partially explained by methodological differences (effect of learning). The percentage contribution of macronutrients to energy intake reached attendance values. The intake of minerals and vitamins was adequate. The serum cholesterol concentration and the blood pressure levels of the subjects increased during the study. Except for the sargent jump and hand grenade throwing (both showing an improvement) all other physical fitness parameters reached attendance values at the last moment of the investigation. The question is whether the increase in the cardiovascular risk factors studied in this investigation will continue during the military career. Netherlands, dutch language. (aw/kt).

**DESCRIPTORS:**\*Food Consumption,\*Performance(Human),\*Nutrients,\*Health Surveys, Army Personnel, Behavior, Blood Pressure, Blood Volume, Careers, Energy Consumption, Grenades, Habits, Health, Human Body, Learning, Military Personnel, Military Training, Netherlands, Noncommissioned Officers, Officer Personnel, Nutrition, Physical Fitness.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/4, 5/9, 6/8

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**AD NUMBER:** B124579

**CORPORATE AUTHOR:** Infantry Div (9th) Fort Lewis Wa High Technology Test Bed

**UNCLASSIFIED TITLE:** Physical Conditioning System Test Letter Report. Phase 1.

**PERSONAL AUTHORS:** Tillman, Charles

**REPORT DATE:** Nov, 1982

**PAGINATION:** 16p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Httb-Tr-82-Tmd-52

**MONITOR ACRONYM:** ADEA

**MONITOR SERIES:** TR-82-T52

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Army Training,\*Physical Fitness,\*Exercise(Physiology), Cohesion, Confidence Level, Endurance(General), Impact, Individualized Training, Manual Operation, Morale, Physiology, Resistance, Infantry, Division Level Organizations, Strength(Physiology).

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; NOV 82. OTHER REQUESTS SHALL BE REFERRED TO HQ TRADOC, ATTN: ATCS-D, FORT MONROE, VA 23651.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** B122061

**CORPORATE AUTHOR:** Naval War Coll Newport Ri Dept Of Operations

**UNCLASSIFIED TITLE:** Training And Selection Of Effective Warfighters.

**PERSONAL AUTHORS:** Hamel, David A.

**REPORT DATE:** Feb 16, 1988

**PAGINATION:** 25p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The focus of this paper is an attempt to define a method for more accurate identification and billet assignment of effective warfighters in pre- and post-conflict stages. The purpose of this examination is: (1) to explore methods of determining who the best war-fighters will be by looking at those key attributes essential to the development of effective combat leaders; and (2) to suggest methods of improving the qualities of leadership, morale, endurance, physical fitness, and mental conditioning. The research uses historical example from factual incidents whose scope is chiefly limited to the world war II era. The study concludes that there is no absolute method for selecting the best warfighters prior to actual conflict. However, it suggests methods of improving the accuracy of this selection and increasing the number of competent warfighting units through improved leadership effectiveness training, increased combat training realism, and mandatory physical and mental conditioning for the rigors of modern warfare. Keywords: leadership; morale; endurance; capabilities; policy; research; command; training.

**DESCRIPTORS:**\*Leadership Training,\*Personnel Selection, Accuracy, Endurance(General), Leadership, Military Training, Morale, Physical Fitness, Warfare, Post War Operations, Operational Effectiveness.

**LIMITATIONS (ALPHA):** DISTRIBUTION AUTHORIZED TO U.S. GOV'T. AGENCIES ONLY; CRITICAL TECHNOLOGY; 27 JUN 88. OTHER REQUESTS MUST BE REFERRED TO NAVAL WAR COLLEGE, ATTN: OPERATIONS DEPT. NEWPORT, RI 02841.

**FIELDS AND GROUPS:** 5/9, 15/6

\*\*\*\*\*

**AD NUMBER:** B116050

**CORPORATE AUTHOR:** Army War Coll Physical Fitness Research Inst Carlisle Barracks Pa

**UNCLASSIFIED TITLE:** Influence Of A Specific Light Infantry Physical Fitness Program On Physical Fitness.

**PERSONAL AUTHORS:** Knapik, Joseph; Drews, Frederick

**REPORT DATE:** Sep, 1987

**PAGINATION:** 42p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** T-3/87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Physical Fitness,\*Training,\*Exercise(Physiology), Anaerobic Processes, Biceps, Muscles, Oxygen Consumption, Repetition Rate, Strength(Physiology), Vertical Orientation, Physiological Effects, Aerobic Processes, Infantry.

**LIMITATIONS (ALPHA):** DISTRIBUTION: FURTHER DISSEMINATION ONLY AS DIRECTED BY ARMY PHYSICAL FITNESS RESEARCH INST., CARLISLE BARRACKS, PA 17013-5050, 15 OCT 87 OR HIGHER DOD AUTHORITY.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** B115006

**CORPORATE AUTHOR:** Defence And Civil Inst Of Environmental Medicine Downsview (Ontario)

**UNCLASSIFIED TITLE:** Expres (Exercise Prescription) Fitness Tests As Predictors Of Stretcher Carrying Ability,

**PERSONAL AUTHORS:** Beach, A. J.; Hart, L. E.; Myles, W. S.; Anderson, S. L.

**REPORT DATE:** Mar, 1987

**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Dciem-87-Rr-09

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of the present was to determine if a predictive relationship exists between the standard physical tests annually administered to all cf personnel (cf expres tests) and the performance of the common military task of stretcher carrying over land. Nine healthy male (mean age 31) and 9 healthy (mean age 26) subjects performed a handgrip strength test, push-ups, sit-ups, a submaximal aerobic fitness test and a stretcher carrying task. The data show that the single best predictor of a task performance for females was the indirect measure of maximum aerobic power while no significant single predictor was found for males. For females, vo 2max, hand grip strength and weight were combined to form a significant multiple regression equation which accounted for 74% for the variance in stretcher carrying performance. No significant predictive regression equations were found for males. It is concluded that: (1) the expres tests have limited predictive power for performance of the stretcher carrying task for females, and no predictive power for males; and (2) for each of the sexes, individual expres tests have different predictive powers.

Keywords: medical evacuation; personnel selection; medical personnel; stretchers.

**DESCRIPTORS:**\*Medical Evacuation,\*Personnel Selection,\*Physical Fitness,\*Stretchers,\*Test Methods, Aerobic Processes, Equations, Exercise(Physiology), Females, Hands, Jobs, Land Areas, Males, Medical Personnel, Performance(Human), Predictions, Regression Analysis, Strength(Physiology), Endurance(Physiology), Simulation, Work Measurement, Workload, Stress(Physiology), Mathematical Models.

**IDENTIFIERS:**\*Stretcher Bearers, Load Carrying.

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/10, 5/9

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**AD NUMBER:** B113403

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Soldier Performance During Continuous Field Artillery Operations.

**PERSONAL AUTHORS:** Knapik, Joseph; Patton, John; Ginsberg, Alvin; Redmond, Daniel; Rose, Madeleine

**REPORT DATE:** May, 1987

**PAGINATION:** 171p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Usariem-T-1/87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study examined physical and mental demands on field artillery soldiers during an 8 day continuous operations scenario. Major concerns were: 1) can field artillery continuous operations be conducted for 8 days at an acceptable level of performance; 2) will physical fitness or stress reduction training improve performance; 3) are certain components of fitness related to field artillery task performance; 4) will physiological capacities change as a result of the scenario; 5) will soldiers consume adequate nutrition during the scenario; 6) will psychological states change as a result of the scenario; 7) will sleep be adequate in the command group during the scenario? It was concluded that under the conditions of this particular scenario, effective continuous field artillery operations could be expected for an 8-day period. There was no degradation in physical work capacity or field artillery performance during the scenario and physical fitness levels of the soldiers involved were adequate to meet the demands of the scenario. Recommendations include: 1) commanders continue to emphasize sleep management and give special attention to developing sleep schedules; 2) a continuous operations scenario be conducted more unfavorable conditions than those of the present study and include measureable performance, physiological, and psychological factors.

**DESCRIPTORS:**\*Artillery Units,\*Performance(Human),\*Army Personnel,\*Stress(Physiology),\*Stress(Psychology), Physical Fitness, Continuity, Field Army, Operation, Degradation, Jobs, Scenarios, Nutrition, Mental Health, Capacity(Quantity), Work, Psychology, Sleep, Army Personnel, Reduction, Stresses, Training, Physiology, Management.

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**FIELDS AND GROUPS:** 5/9, 6/10, 5/8, 15/6

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**AD NUMBER:** B112594

**CORPORATE AUTHOR:** Foreign Technology Div Wright-Patterson AFB Oh

**UNCLASSIFIED TITLE:** Women In The Ussr - 1985 Statistical Material (Zhenshchiny V Sssr - 1985 Statisticheskoye Materialy).

**REPORT DATE:** Jun 11, 1987

**PAGINATION:** 45p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ftd-Id(Rs)T-0127-87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Trans. Of Mono. Finansy I Statistika, Moscow, 1985 P1-35.

**ABSTRACT:** Partial contents: total number of women in the ussr; number of women by union republic; number of women who are deputies of the ussr supreme soviet, union and autonomous republic supreme soviets, and local soviets of people's deputies; average number of women per year who are manual and office workers in the economy; number of women specialists with higher and specialized secondary education employed in the national economy; ussr budget expenditures for mothers' benefits, teaching, and child care; number of mothers with several children who receive monthly government benefits; number of mothers with several children who have been awarded the title mother-heroine, and the number of mothers of several children decorated with the order maternal honor and with the medal of motherhood ; number of beds (medical and obstetric) for pregnant women and for childbirth by union republic; general medical care for children; and physical training for children and adolescents. (russian translations).

**DESCRIPTORS:**\*Women,\*Statistical Data, Adolescents, Children, Benefits, Females, Office Personnel, Pregnancy, Supervision, Medical Services, Ussr, Specialists, Physical Fitness, Training, Russian Language, Translations, Education, Obstetrics, Secondary

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**FIELDS AND GROUPS:** 5/9, 12/1

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**AD NUMBER:** B112171

**CORPORATE AUTHOR:** Army War Coll Carlisle Barracks Pa

**UNCLASSIFIED TITLE:** Mobilization Training Base Expansion: Structure And Readiness Implications.

**PERSONAL AUTHORS:** Alvord,Harold F. ;

**REPORT DATE:** Mar 16, 1987

**PAGINATION:** 141p Media Cost: \$ 11.00 Price Code: Ab

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Mobilization,\*Army Training, Army, Enlisted Personnel, Expansion, Inactivation, Instructors, Jobs, Management, Military Reserves, Operational Readiness, Physical Fitness, Army Planning

**LIMITATIONS (ALPHA):** DISTRIBUTION: FURTHER DISSEMINATION ONLY AS DIRECTED BY DIRECTOR, MILITARY STUDIES PROGRAM, US ARMY WAR COLL., CARLISLE BARRACKS, PA 17013, 16 MAR 87 OR HIGHER DOD AUTHORITY.

**FIELDS AND GROUPS:** 15/1

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**AD NUMBER:** B111059

**CORPORATE AUTHOR:** Army War Coll Physical Fitness Research Inst Carlisle Barracks Pa

**UNCLASSIFIED TITLE:** Physical Fitness Training And Research In Foreign Military Organizations.

**PERSONAL AUTHORS:** Drews,Frederick ;Knapik,Joseph ;Servon,Peter ; Frushour,Cara ;

**REPORT DATE:** Mar, 1987

**PAGINATION:** 38p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** T-2/87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:** Physical Fitness,\*Military Training,\*Exercise(Physiology), Military Forces(Foreign), Military Organizations, Norway, Physical Fitness, Sweden, West Germany, Japan, Test Methods, Training, Great Britain

**LIMITATIONS (ALPHA):** DISTRIBUTION: FURTHER DISSEMINATION ONLY AS DIRECTED BY DIRECTOR, ARMY PHYSICAL FITNESS RESEARCH INST., ARMY WAR COLLEGE, CARLISLE, PA 17013-5050, 12 MAY 87 OR HIGHER DOD AUTHORITY.

**FIELDS AND GROUPS:** 6/4, 6/10, 5/9

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**AD NUMBER:** B110204

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** Ergometry In The Water - A New Way Of Performance Diagnosis For Swimmers,

**PERSONAL AUTHORS:** Simon,G. ;Thiesmann,M. ;Frohberger,U. ;Clasing,D. ;

**REPORT DATE:** Jul 28, 1986

**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-383-86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Deutsche Zeitschrift Fuer Sportmedizin (Germany, F.R.) V34 N1 P5-14 1983.

**ABSTRACT:** Thirty two (32) competitive swimmers were subjected to a progressive swimming load besides a spiroergometry, seated on an ergonomic bicycle, and a x-ray heart volume determination. The swimming courses were 300 m for each load step, the swimming speeds were preset by a light pacer (light band). Starting with 4:30 min/ 300 m for crawl (5:00 min/300 m back stroke, 5:30 min/300 m breast stroke), the swimming speed was increased stepwise up to subjective fatigue by cutting down times by 15 sec./300 m. Prior and 3 min. After load as well as at the end of each load step heart frequencies were determined and capillary blood was sampled for lactate determination. The method of investigation thus represents a sportsspecific procedure of exact reproducibility, permitting a clear assessment of the performance and an accurately aimed training advice of swimmers, based on a determination of the lactate behavior.

**DESCRIPTORS:**\*Exercise(Physiology),\*Physical Fitness,\*Military Training,\*Swimmers, Training, Cutting, Downtime, Behavior, Lactates, Frequency, Heart, Loads(Forces), Reproducibility, Velocity, Blood, Capillary Tubes, Determination, Diagnosis(General), Fatigue(Physiology), Ergometers, German Language, Translations, West Germany, Water

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; COPYRIGHT, SPECIFIC AUTHORITY; 1 JUN 84. OTHER REQUESTS MUST BE REFERRED TO US ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH ST., NE, CHARLOTTESVILLE, VA 22901- 5396.

**FIELDS AND GROUPS:** 5/6, 5/9, 6/10

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**AD NUMBER:** B106076

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va



**UNCLASSIFIED TITLE:** Metabolid Behavior During Treadmill Work With Persons Of Varying Levels Of Physical Conditioning,

**PERSONAL AUTHORS:** Simon,G. ;Berg,A. ;Dickhuth,H.-H. ;Kuebel,R. ; Goertler,I. ;

**REPORT DATE:** Sep 02, 1986

**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-382-86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Unedited Trans. Of Deutsche Zeitschrift Fuer Sportmedizin (Germany, F.R.) V33 N9 P290-303 1982.

**ABSTRACT:** The substrates significant for energy metabolism (glucose, lactate, triglyceride, free fatty acids, glycerol) and hormones (insulin, somatotropin) of 20 mid-level national class cross-country skiers were determined during treadmill ergometric stress testing at the beginning and end of a 4-month summer training period. The glucose levels show an increase over the original value following an initial decrease under conditions of increasing stress. The concentrations of glycerol and free fatty acids point to a considerable mobilization and utilization of free fatty acids already occurring at this length of exertion (15 - 20 min.). The insulin behavior is not uniform where-as the somatotropin shows changes such as those occurring during longer periods of endurance exertion. While the remaining substrates and metabolically active hormones do not show any conclusive changes in relation to the level of physical conditioning, the low lactate levels at sub-maximum exertion levels during the second ergometric test signal an improvement in aerobic performance capability. Thus lactate proves to be a sensitive metabolic parameter for performance evaluations during progress observations.

**DESCRIPTORS:**\*Metabolism,\*Metabolites,\*Exercise(Physiology), Substrates, Hormones, Skiing, Treadmills, Ergometers, Training, Glucose, Glycerols, Fatty Acids, Concentration(Chemistry), Insulin, Lactates, Physical Fitness, Aerobic Processes, Translations, West Germany, German Language

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; COPYRIGHT, SPECIFIC AUTHORITY; 1 JUN 84. OTHER REQUESTS MUST BE REFERRED TO US ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER, 220 7TH ST., NE., CHARLOTTESVILLE, VA 22901- 5396.

**FIELDS AND GROUPS:** 6/1, 6/10

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**AD NUMBER:** B106047

**CORPORATE AUTHOR:** Army Soldier Support Center Fort Benjamin Harrison In

**UNCLASSIFIED TITLE:** I Am The American Soldier.

**REPORT DATE:** Mar 31, 1985

**PAGINATION:** 149p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** SBI

**MONITOR SERIES:** AD-F250 568

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this field circular is to provide a demographic portrayal of the current force and of current and future accessions into the military up to and including the out years (beyond year 2000). The document is designed primarily to serve as a source document for the tradoc combat and training development communities and other interested

agencies and activities of the us army in the accomplishment of their mission and in the planning for the army of tomorrow.

**DESCRIPTORS:**\*Army Training,\*Army Personnel,\*Statistical Analysis,\*Enlisted Personnel,\*Officer Personnel, Statistical Data, Training, Military Organizations, Statistics, Officer Personnel, Census, Personnel Management, Personnel Development, Personnel Retention, Personnel Selection, Army, Active Duty, Ethics, Physical Fitness, Education, Aging(Physiology), Race Relations, Demography, Recruits

**IDENTIFIERS:** Fc 21-451, 1985, Field Circular 21-451, Active Duty Army Personnel, Itas(I Am The American Soldier), Tradoc(Training And Doctrine Command), Warrant Officers, Sbi4, Fy86

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO DOD AND DOD CONTRACTORS ONLY; SPECIFIC AUTHORITY; 29 AUG 86. OTHER REQUESTS MUST BE REFERRED TO COMMANDER, ARMY SOLDIER SUPPORT CENTER, ATTN: ATSG-DSS, FORT BENJAMIN HARRISON, IN 46216.

**FIELDS AND GROUPS:** 5/6

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**AD NUMBER:** B105427

**CORPORATE AUTHOR:** Army Foreign Science And Technology Center Charlottesville Va

**UNCLASSIFIED TITLE:** Swedish Army Regulation On Administration Of Physical Fitness Tests To Conscriptees During Basic Training.

**REPORT DATE:** Jan 24, 1986

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Fstc-Ht-1281-85

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Trans. Of Bestaemmelser Foer Prov: Vaernpliktiga Under Grundutbildning, Del 3.6 (Sweden) 6p, 11 Jan 85.

**ABSTRACT:** Physical tests for soldiers are designed to monitor the general physical prowess, firing, and pathfinding and map-reading abilities of active service personnel in army units.

**DESCRIPTORS:**\*Army Training,\*Physical Fitness,\*Exercise(Physiology), Infantry, Military Forces(Foreign), Volunteers, Firing Tests(Ordnance), Paths, Direction Finding, Map Reading, Translations, Sweden

**IDENTIFIERS:** Swedish Language

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES AND THEIR CONTRACTORS; SPECIFIC AUTHORITY; 1 JUN 84. OTHER REQUESTS MUST BE REFERRED TO US ARMY FOREIGN SCIENCE AND TECHNOLOGY, 220 7TH ST., N.W., CHARLOTTESVILLE, VA 22901-5396.

**FIELDS AND GROUPS:** 5/6, 6/10

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**AD NUMBER:** B105008

**CORPORATE AUTHOR:** Army Tradoc Liaison Office Apo New York 09080

**UNCLASSIFIED TITLE:** Selection Of Tankers For The German Army.

**PERSONAL AUTHORS:** Medenbach,P. C. ;

**REPORT DATE:** Dec 09, 1982

**PAGINATION:** 3p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Tradoc-F-22-82

**MONITOR ACRONYM:** SBI

**MONITOR SERIES:** AD-F250 485

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Personnel Selection,\*Tank Crews, Military Personnel, Training, Armor, Tanks(Combat Vehicles), Volunteers, West Germany, Armored Vehicles, Physical Fitness, Military Training, Military Forces(Foreign), Recruits

**IDENTIFIERS:**\*Tankers, German Army, Fact Sheet, Draftees, F-22- 82, Sbi4, Fy86

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY; TEST AND EVALUATION; 27 AUG 86. OTHER REQUESTS MUST BE REFERRED TO TRADOC LIAISON OFFICE, ATTN: ATFE-LO-GA, BOX 115, APO NEW YORK 09080.

**FIELDS AND GROUPS:** 5/6, 15/6, 19/3

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**AD NUMBER:** B102766

**CORPORATE AUTHOR:** Army War Coll Carlisle Barracks Pa

**UNCLASSIFIED TITLE:** An Analysis Of The Effectiveness Of The Battalion-Level Master Fitness Trainer,

**PERSONAL AUTHORS:** Poe,Gerald D. ;Ellis,Larry R. ;Roper,Robert W., Jr;

**REPORT DATE:** May 01, 1986

**PAGINATION:** 86p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**DESCRIPTORS:**\*Army Training,\*Physical Fitness, Noncommissioned Officers, Army Personnel, Logistics Support, Battalion Level Organizations, Military Commanders, Company Level Organizations, Literature Surveys, Optimization, Questionnaires, Indiana, Interviewing

**LIMITATIONS (ALPHA):** DISTRIBUTION LIMITED TO DOD ONLY; PREMATURE DISSEMINATION; 1 MAY 86. OTHER REQUESTS MUST BE REFERRED TO DIRECTOR, MILITARY STUDIES PROGRAM, US ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013.

**FIELDS AND GROUPS:** 5/6, 5/9

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**AD NUMBER:** B099675

**CORPORATE AUTHOR:** Stockholm Univ (Sweden) Dept Of Psychology

**UNCLASSIFIED TITLE:** Observer Ratings Of Exertion: A Comparison Between Natural Settings And Videofilmed Settings On Bicycle Ergometer,

**PERSONAL AUTHORS:** Ljunggren,Gunilla ;

**REPORT DATE:** Aug, 1985

**PAGINATION:** 11p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** 637

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A comparison was made between observers' estimation of bicycling subjects exertion from three different types of settings: (a) from a natural setting with the observers present in the room while the cyclist was bicycling, (b) from a videofilm of a bicycling subject, and (c) from a videofilm without sound. Three bicycling subjects cycled on a bicycle ergometer at six different power levels presented in random order. Three-observer-

groups each estimated each of the cyclists, but in such a way that no group estimated the same cyclist as any other group in the same type of setting. The estimations were made simultaneously by the observers and the cyclists during the last half minute at each power level. The estimations were made on a category-ratio scale. Immediately before the ratings, the cyclists' heart rates were registered. The correlation between the cyclists' heart rates and the observers' estimations was high in all three settings. The results showed that it is possible for observers to estimate an individual's exertion at physical work equally well from a natural setting and from videofilmed settings, whether these are accompanied by sound or not.

**DESCRIPTORS:**\*Stress(Physiology),\*Exercise(Physiology),\*Heart Rate, Ergometers, Setting(Adjusting), Work, Power Levels, Estimates, Observers, Rates, Physical Fitness

**IDENTIFIERS:**\*Exertion, Bicycling

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 6/4, 6/10

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**AD NUMBER:** B097557

**CORPORATE AUTHOR:** Defence And Civil Inst Of Environmental Medicine Downsview (Ontario)

**UNCLASSIFIED TITLE:** Effects Of Hydraulic Resistance Circuit Training On Physical Fitness Components Relevant To +G(Z) Tolerance,

**PERSONAL AUTHORS:** Jacobs,I. ;Bell,D. G. ;Pope,J. ;Lee,S. W. ;

**REPORT DATE:** Oct, 1985

**PAGINATION:** 36p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Dciem-85-R-38

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Recent studies carried out in the united states and sweden have demonstrated that strength training can improve + gz acceleration tolerance. Therefore the cf directorate of physical education, recreation and amenities has designed a training program which has recently been introduced for aircrew of high performance aircraft. This report describes the changes in physical fitness components considered relevant to + gz tolerance after 12 weeks of training with this program. Forty-five military personnel were tested prior to beginning training. Only 20 subjects completed a minimum of 24 training sessions during the 12 weeks; these twenty were retested in order to evaluate the effects of adherence to the program. The following variables were measured prior to and after training: maximal strength of several large muscle groups during isokinetic contractions, maximal aerobic power and an index of endurance fitness, maximal anaerobic power, anthropometric characteristics, and maximal expiratory pressure generated by the respiratory muscles during exhalation. After training the changes in anthropometric measurements suggested that lean body mass was increased. Significant increases were also measured in muscle strength during bench press, biceps curls, squats, knee extension and flexion. It is suggested that the small increases in strength are probably due to the design of the exercise:rest ratio which resulted in improved strength and aerobic fitness.

**DESCRIPTORS:**\*Acceleration Tolerance,\*Physical Fitness, Aerobic Processes, Aircraft, Anaerobic Processes, Anthropometry, Bodies, Circuits, Exhalation, High Rate, Hydraulic Equipment, Knee(Anatomy), Mass, Measurement, Muscles, Parts,

Performance(Engineering), Power, Ratios, Recreation, Resistance, Respiratory System,  
Rest, Strength(General), Strength(Physiology), Sweden, Training, United States

**LIMITATIONS (ALPHA):** DISTRIBUTION: DTIC USERS ONLY.

**FIELDS AND GROUPS:** 5/9, 6/10

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**AD NUMBER:** A319205

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Use Of Bioelectrical Impedance Analysis Measurements As

Predictors Of Physical Performance,

**PERSONAL AUTHORS:** Hodgdon, James A.; Friedl, Karl E.; Beckett, Marcie B.; Westphal,  
Kathleen A.; Shippee, Ronald L.

**REPORT DATE:**, 1996

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-95-21

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Through its association with fat-free mass (ffm), bioelectrical impedance analysis (bia) offers an alternative to physical performance testing. We examined the relations between stature(2)/resistance (s2/r), ffm, and muscular strength in data from three studies of young military men and women. Resistance was measured at 50 khz by using the conventional tetrapolar electrode method. Ffm was based on skinfold thicknesses, and estimated with the regression equations of dumin and womersley. Strength was measured as a one-repetition maximum on an incremental lift test (il1rm), which is widely used by the military services to predict overall body strength. Although there was an association between il1rm and s2/r in each of these studies (correlations ranged from 0. 35 to 0.53), correlations were strongest between ffm and s2/r (r 0. 53 to 0.85), indicating that bia and ffm derived from skinfold thicknesses are better correlated with each other than are the relations of either of these with physical performance. Modest increases in ffm and strength in one 8-week training study correlated with s2/r; however, large decreases in ffm and strength in another study (with weight losses of 10 kg in 8 weeks) were not reflected by changes in s2/r. Thus, bia is not particularly useful for performance prediction despite its moderate relation to ffm. Bia is especially problematic with large changes in body composition, for which there are apparent deviations in hydration status; expedient methods such as skinfold predictions will be more resistant to such effects.

**DESCRIPTORS:**\*Performance(Human),\*Strength(Physiology),\*Bioelectricity, Reprints, Job Training, Performance Tests, Naval Personnel, Lipids, Naval Research, Physical Fitness, Muscles, Personnel Selection, Electrical Impedance, Body Weight, Fat Cells, Skin Tests.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN AMERICAN JOURNAL OF CLINICAL NUTRITION, V64(SUPPL) P463S-8S, 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4

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**AD NUMBER:** A318837

**CORPORATE AUTHOR:** Naval Medical Research Lab New London Ct

**UNCLASSIFIED TITLE:** A Statistical Evaluation Of Physical Fitness Tests,

**PERSONAL AUTHORS:** Cook, Ellsworth B.; Wherry, Robert J.

**REPORT DATE:** Sep, 1949

**PAGINATION:** 18p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRL

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Prepared In Collaboration With Ohio State Univ., Columbus, Oh.

**ABSTRACT:** Much research has been undertaken to investigate the relationship between cardiovascular functions and general bodily efficiency, and the use of this relationship to gauge general health has brought forth a wide variety of tests which vie for recognition. Workers in the fitness field have often been puzzled by the low correlation shown between tests which all support to measure this general trait.

**DESCRIPTORS:** \*Physical Fitness, \*Statistical Analysis, Test Methods, Correlation, Connecticut, Cardiovascular System, Submarine Bases.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN RESEARCH QUARTERLY OF THE AMERICAN ASSOC. FOR HEALTH, PHYSICAL EDUCATION AND RECREATION, V21 N2 P94-111, MAY 50. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4

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**AD NUMBER:** A318129

**CORPORATE AUTHOR:** Vmi Research Labs Lexington Va

**UNCLASSIFIED TITLE:** Leader Attributes And Behaviors Predicting Emergence Of Leader Effectiveness.

**PERSONAL AUTHORS:** Atwater, Leanne E.; Dionne, Shelly D.; Avolio, Bruce J.; Camobreco, John F.; Lau, Alan W.

**REPORT DATE:** Jul, 1996

**PAGINATION:** 95p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** MDA903-91-C-0131

**MONITOR ACRONYM:** ARI, XA

**MONITOR SERIES:** TR-1044, ARI

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Prepared In Cooperation With New York State Univ., Binghamton, Arizona State Univ., Phoenix.

**ABSTRACT:** This report examines relationships between the leadership of entering leaders and antecedent measures of personality, ability, temperament, interpersonal style, experience, and physical fitness. The data described a sample of cadets/ students over the course of their education and military training at a state military college. The primary purpose was to track longitudinally leader development and emergence and to identify individual characteristics and leadership behaviors that differentiated the leadership position and leadership effectiveness attained by the cadets. Results showed that individual characteristics, with some measured at college entry, predicted position attainment and rated (peer) leadership effectiveness. Results also showed that transformational behavior, as well as transactional leadership behavior, characterized cadets emerging as leaders.

**DESCRIPTORS:**\*Leadership,\*Roles(Behavior), Military Requirements, Army Research, Predictions, Performance(Human), Cognition, Reasoning, Military Training, Physical Fitness, Psychological Tests, Officer Personnel, Judgement(Psychology), Psychometrics, Perception(Psychology), Personality, Military Psychology, Leadership Training, Interpersonal Relations, Intelligence(Humans), Social Psychology, Aptitudes, Cadets, Conditioning(Learning).

**IDENTIFIERS:** Pe62785a, Wuc03

**FIELDS AND GROUPS:** 5/8

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**AD NUMBER:** A317422

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Generalizability Test Of A Physical Ability- Job Performance Model.

**PERSONAL AUTHORS:** Vickers, Ross R., Jr

**REPORT DATE:** Apr 04, 1996

**PAGINATION:** 34p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-96-16

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Models of u.s. navy physical task performance can be used to improve job design, physical fitness standards, and wargaming verisimilitude. Generic models of human capabilities, limitations, and performance are needed for simulation and modeling (under secretary of defense (acquisition and technology), 1995). Vickers (1995) provided a simple, potentially useful model, but the empirical basis for the model left uncertainty about how broadly it applied to different people and tasks. One concern was that a model based solely on data from males would not generalize to females. A strength-performance model developed from male data was generalized to female data reported by robertson and trent (1985). Structural equation modeling demonstrated that: (1) male and female correlation matrices could be represented by a single model, and (2) the initial male model could be simplified from two strength dimensions and two performance dimensions to one strength dimension and one performance dimension. Those strength and performance dimensions were highly correlated ( $r = .953$ ). The specific model developed here may apply only to physical tasks of relatively brief duration, but this first approximation can be useful because it covers a wide range of common navy physical tasks. Structural modeling provides a tool for refining this initial model to represent a wider range of tasks or to produce higher fidelity in the prediction of specific tasks.

**DESCRIPTORS:**\*Jobs,\*Performance(Human),\*Structural Properties,\*Physical Fitness, Simulation, Uncertainty, Models, Humans, Navy, Strength(General), Standards, Naval Operations, War Games, Males, Equations, Range(Extremes), Females.

**IDENTIFIERS:** Pe63706n, Wu-6417

**FIELDS AND GROUPS:** 5/1, 6/5, 6/10

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**AD NUMBER:** A316932

**CORPORATE AUTHOR:** Army Research Lab Aberdeen Proving Ground Md

**UNCLASSIFIED TITLE:** Perspectives On U.S. Army Physical Requirements: Problems And Current Approaches To Solutions,

**PERSONAL AUTHORS:** Headley, Donald B.; Rice, Valerie J.

**REPORT DATE:**, 1996

**PAGINATION:** 2p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Of the various types of occupational standards (e.g., cognitive, formal education, manual dexterity) two of the more important considerations for military operations are physical demands and anthropometric characteristics. Fifty-seven percent of army entry level jobs have a physical demands rating of heavy or very heavy (i.e., occasional lifting of 100 or more pounds, & frequent or constant lifting of 50 pounds). Also, the issue of fit is important given that current assignment opportunities for women have greatly increased, and given that typically the design envelope on a given dimension for most equipment has been the 5th to 95th percentile male. Inadequate matching of personnel capabilities and task assignments results in increased costs in the form of supplemental training, inadequate performance, and work- related injuries.

**DESCRIPTORS:**\*Military Requirements,\*Physical Properties,\*Physical Fitness, Military Operations, Skills, Training, Costs, Solutions(General), Wounds And Injuries, Manual Operation, Personnel, Work, Army, Matching, Women, Anthropometry.

**FIELDS AND GROUPS:** 5/9, 6/4, 15/5

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**AD NUMBER:** A316556

**CORPORATE AUTHOR:** Virginia Military Inst Lexington

**UNCLASSIFIED TITLE:** Antecedent Predictors Of A 'Full Range' Of Leadership And Management Styles.

**PERSONAL AUTHORS:** Avolio, Bruce J.; Dionne, Shelly; Atwater, Leanne; Lau, Alan; Camobreco, John

**REPORT DATE:** Mar, 1996

**PAGINATION:** 107p Media Cost: \$ 11.00 Price Code: Ab

**CONTRACT NUMBER:** MDA903-91-C-0131

**MONITOR ACRONYM:** ARI, XA

**MONITOR SERIES:** TR-1040, ARI

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Prepared In Cooperation With State University Of New York, Binghamton, Ny.

**ABSTRACT:** This report examines relationships between the leadership of entering leaders and antecedent measures of personality, ability, temperament, interpersonal style, experience, and physical fitness. The data described a sample of cadets/ students during their first 2 1/2 years of education and military training at a state military college. The primary purpose was to track longitudinally leader development and emergence and, in this reporting of the data, to identify antecedents which differentiate cadets characterized by a transformational leadership style from those cadets more characterized by transactional styles of leadership. Results suggested potential discriminators, but more definitive trends will possibly appear



as the cadets progress in education and transition into positions with greater leadership discretion.

**DESCRIPTORS:** \*Skills, \*Predictions, \*Personnel Development, \*Leadership Training, \*Discriminators, \*Attitude(Inclination), \*Roles(Behavior), \*Cadets, Education, Students, Patterns, Universities, Military Training, Physical Fitness, Personality, Interpersonal Relations, Longitude.

**IDENTIFIERS:** Transformational Leadership, Pe62785a

**FIELDS AND GROUPS:** 5/1, 5/8, 5/9, 15/1

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**AD NUMBER:** A316501

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Regional Fat Placement In Physically Fit Males And Changes With Weight Loss,

**PERSONAL AUTHORS:** Nindl, Bradley C.; Friedl, Karl E.; Thomas, Cecilia D.; Marchitelli, Louis J.; Shippee, Ronald L.

**REPORT DATE:** 1996

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The abdomen is the principal site of fat deposition in men, and because abdominal fat is readily mobilized during exercise, the relative proportion of fat in the abdominal site may negatively correlate with the amount of regular physical activity, and even with physical fitness. This study presents data for regional fatness in 165 fit young men (u.s. army ranger candidates; initial body fat = 14.7 plus or minus 4.7%) assessed by dual-energy x-ray absorptiometry (dexa), and for relative changes occurring following a 13% weight loss produced by a 1000 kcal-d energy deficit over 5 wk. Fat-free mass was constant across quintiles of percent body fat; only fat mass was different (16.2 t 2.2 kg and 6.0 plus or minus 1.4 kg at upper and lower quintiles, respectively). Truncal fat accounted for about 41% of total body fat in all quintiles; only the proportion of fat distributed to the arms was significantly higher in the fattest quintiles of men. Among a group of less intensely trained soldiers with the same average fatness as the highest quintile of ranger students (20%), relative fat distribution to the trunk approached 50% of the total fat. Following weight loss, ranger students lost half of the fat in all regions assessed (legs, arms, and trunk). The only significant association between regional losses and initial fatness was a greater proportion of fat lost from the arms in the fattest rangers. These data suggest a 'fit fat' distribution in active young men in which fat remains in the arms and legs until extreme weight loss occurs and the metabolically more active abdominal fat approaches depletion.

**DESCRIPTORS:** \*Army Personnel, \*Physical Properties, \*Physical Fitness, \*Fats, \*Weight Reduction, \*Exercise(Physiology), Students, Training, Distribution, Mass, Sites, Regions, Deposition, Emplacement, Losses, Abdomen, Legs, Adipose Tissue.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MEDICINE AND SCIENCE IN SPORTS AND EXERCISE P786-793 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9, 6/5, 6/10

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**AD NUMBER:** A315950

**CORPORATE AUTHOR:** Pennsylvania State Univ University Park

**UNCLASSIFIED TITLE:** Strategies For Optimizing Strength, Power, And Muscle Hypertrophy  
In Women.

**PERSONAL AUTHORS:** Kraemer, William J.

**REPORT DATE:** Sep, 1996

**PAGINATION:** 62p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** DAMD17-95-C-5069

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRMC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This report represents the first year of our investigation. In the first year we completed the training and testing of 37 women. We also completed testing of 35 men for strength/power gender comparison controls. In order to determine the effects of different types of training programs-this study will utilize 3 years to complete all of the training and testing required to gain the needed n size for 6 experimental groups and a control group of men for gender based comparisons of strength/power performances. In this study military relevant tasks, strength/power testing, neuromuscular responses (e.g., emg responses), muscle morphology via magnetic resonance imaging, immune function, and endocrine profiles related to anabolic and catabolic hormones will all be determined to gain an underlying biological understanding of the adaptational responses in women to different types of resistance and endurance training programs.

**DESCRIPTORS:** \*Stress(Physiology), \*Strength(Physiology), \*Physical Fitness, \*Response(Biology), \*Women, Test And Evaluation, Control, Functions, Sizes(Dimensions), Training, Comparison, Morphology, Endurance(General), Power, Military Training, Muscles, Immunity, Nerves, Magnetic Resonance Imaging.

**IDENTIFIERS:** Defense Women's Health Research Program

**LIMITATIONS (ALPHA):** AVAILABILITY: DOCUMENT PARTIALLY ILLEGIBLE.

**FIELDS AND GROUPS:** 6/5, 6/10

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**AD NUMBER:** A312293

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Models Of Physical Training Response,

**PERSONAL AUTHORS:** Hodgdon, J. A.; Hilbert, R. P.

**REPORT DATE:**., 1993

**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The use of mathematical models is a convenient way to summarize the findings of the research done in the area of physiological response to physical training. This chapter describes our efforts to develop a model of physical fitness training response based on the use of a nonlinear equation. This approach was used with group responses to both strength and aerobic training and found to offer better prediction than linear response models. A specific model was developed to predict response to a single resistance exercise. While this

specific model does not generalize to other studies or exercises, it serves to indicate the promise of this approach.

**DESCRIPTORS:**\*Wounds And Injuries,\*Physical Fitness,\*Personnel Selection,\*Naval Training,\*Medical Evacuation, Mathematical Models, Models, Training, Test Methods, Nonlinear Systems, Linearity, Physiological Effects, Human Body, Response(Biology), Equations, Stretchers, Aerobic Processes, Resistance(Biology).

**IDENTIFIERS:** Nato Furnished

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN ANNUAL OF MEDICAL MILITARY BELG. V7 N11 P55-64 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS., AVAILABILITY: DOCUMENT PARTIALLY ILLEGIBLE.

**FIELDS AND GROUPS:** 6/5, 6/10, 15/1

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**AD NUMBER:** A312196

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Dual-Energy X-Ray Absorptiometry Derived Structural Geometry For Stress Fracture Prediction In Male U.S. Marine Corps Recruits.

**PERSONAL AUTHORS:** Beck, T. J.; Ruff, C. B.; Mourtada, F. A.; Shaffer, R. A.; Maxwell-Williams, K.

**REPORT DATE:**, 1996

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-96-8

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A total of 626 u.s. male marine corps recruits underwent anthropometric measurements and dual-energy x-ray absorptiometry (dxa) scans of the femoral midshaft and the distal third of the tibia prior to a 12 week physical training program. Conventionally obtained frontal plane dxa scan data were used to measure the bone mineral density (bmd) as well as to derive the cross-sectional area, moment of inertia, section modulus, and bone width in the femur, tibia, and fibula. During training, 23 recruits (3.7%) presented with a total of 27 radiologically confirmed stress fractures in various locations in the lower extremity. After excluding 16 cases of shin splints, periostitis, and other stress reactions that did not meet fracture definition criteria, we compared anthropometric and bone structural geometry measurements between fracture cases and the remaining 587 normals. There was no significant difference in age ( $p = 0.8$ ), femur length ( $p = 0.2$ ), pelvic width ( $p = 0.08$ ), and knee width at the femoral condyles ( $p = 0.06$ ), but fracture cases were shorter ( $p = 0.01$ ), lighter ( $p = 0.0006$ ), and smaller in most anthropometric girth dimensions ( $p < 0.04$ ). Fracture case bone cross-sectional areas ( $p < 0.001$ ), moments of inertia ( $p < 0.001$ ), section moduli ( $p < 0.001$ ), and widths ( $p < 0.001$ ) as well as bmd ( $p < 0.03$ ) were significantly smaller in the tibia and femur. After correcting for body weight differences, the tibia cross-sectional area ( $p = 0.03$ ), section modulus ( $p = 0.05$ ), and width ( $p = 0.03$ ) remained significantly smaller in fracture subjects. We conclude that both small body weight and small diaphyseal dimensions relative to body weight are factors predisposing to the development of stress fractures in this population.

**DESCRIPTORS:**\*Stress(Physiology),\*X Rays,\*Military Medicine,\*Wounds And Injuries,\*Medical Services,\*Bones,\*Bone Fractures, Scanning, Density, Measurement,

Methodology, Risk, Predictions, Structural Properties, Length, Cross Sections, Geometry, Males, Military Training, Physical Fitness, Marine Corps Personnel, Recruits, Minerals, Body Weight, Anthropometry, Joints, Legs, Moment Of Inertia, Medical Supplies, Extremities, Knee(Anatomy), Tibia.

**IDENTIFIERS:** Bmd(Bone Mineral Density), Pe63706n, Wu6206

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN JNL. OF BONE AND MINERAL RESEARCH, V11 N5 P645-653, 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS., AVAILABILITY: DOCUMENT PARTIALLY ILLEGIBLE.

**FIELDS AND GROUPS:** 6/4, 6/5, 6/7

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**AD NUMBER:** A309990

**CORPORATE AUTHOR:** General Accounting Office Washington Dc National Security And International Affairs Div

**UNCLASSIFIED TITLE:** Basic Training: Services Are Using A Variety Of Approaches To Gender Integration.

**REPORT DATE:** Jun, 1996

**PAGINATION:** 14p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Gao/Nsiad-96-153

**MONITOR ACRONYM:** X1

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Report To The Chairman, Subcommittee On Military Personnel, Committee On National Security, House Of Representatives.

**ABSTRACT:** This report reviews enlisted basic training to determine the (1) extent to which the services are conducting gender-integrated basic training; (2) changes that were made to accommodate this training and the cost of the changes; (3) pass/ fail rates (or other measures of performance) for gender-integrated basic training compared with those for segregated training; and (4) training regimen, results, and issues related to the current gender-integrated basic training compared with the army's previous experiences with gender-integrated basic training. Women have traditionally played a role in the military services. In recent years, many more career fields have opened to women, and their assignment opportunities have considerably expanded. In the past, all of the services had different programs for basic training for men and women and conducted the training for the two groups separately. More recently, however, the services have adjusted their philosophy of basic training for women and now have programs more closely aligned with those of the men. During fiscal year 1995, the services trained 179,068 recruits-18 percent of whom were women. Women comprised 18 percent of the 75,616 basic training graduates in the army, 20 percent of the 40,813 graduates in the navy, 24 percent of the 30,515 graduates in the air force, and 5 percent of the 32,124 graduates in the marine corps.

**DESCRIPTORS:**\*Modification,\*Enlisted Personnel,\*Integration,\*Males,\*Military Training,\*Personnel Development,\*Females,\*Equal Employment Opportunity, Military Forces(United States), Military History, Low Costs, Performance Tests, Interactions, Careers, Limitations, Physical Fitness, Women, Recruits, Medical Examination, Military Hygiene, Segregation(Sociology).

**IDENTIFIERS:**\*Gender Integration, Gao Reports

**FIELDS AND GROUPS:** 5/5, 5/9, 15/1

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**AD NUMBER:** A309801

**CORPORATE AUTHOR:** Naval Medical Research Inst Bethesda Md

**UNCLASSIFIED TITLE:** The Influence Of Task Resistance On The Characteristics Of  
Maximal One- And Two-Handed Lifting Exertions In Men And Women,

**PERSONAL AUTHORS:** Fothergill, D. M.; Grieve, D. W.; Pinder, A. D.

**REPORT DATE:**, 1996

**PAGINATION:** 11p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nmri-96-09

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Dynamic lifting strength was assessed at lift velocities ranging from 0 to 1 m-s-1 using a hydrodynamometer in which the viscous resistance to motion could be preset. Nine men and nine women performed one- and two-handed dynamic exertions against low, medium, and high resistances. The subjects were required to lift as forcefully and as fast as possible from a height of 400 mm to just above head height. The instantaneous forces recorded at knee, knuckle, hip, shoulder, elbow, and head heights were compared with those obtained during maximal one- and two-handed isometric lifts performed at the same heights. The position of peak force relative to stature was lower for one-handed lifts (35.9% of stature) than for two-handed lifts (38.4% of stature) ( $p < 0.005$ ), but was unaffected by lift resistance ( $p > 0.05$ ) and subject sex ( $p > 0.05$ ). Lifting forces during two-handed exertions were on average 1.5 times greater than for one-handed exertions ( $p < 0.0001$ ). However, the difference in the strength of one- and two-handed lifts was highly dependent on hand height ( $p < 0.0001$ ) and task resistance ( $p < 0.005$ ), and was greater for the men than for the women ( $p < 0.001$ ).

**DESCRIPTORS:**\*Strength(Physiology),\*Muscles,\*Exercise(Physiology),\*Endurance(Physiology), Peak Values, Resistance, Motion, Physical Fitness, Dynamometers, Lift, Viscosity, Women, Height, Sex, Force(Mechanics), Dynamic Tests, Hands.

**IDENTIFIERS:** Exertion

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN EUROPEAN JNL. OF APPLIED PHYSIOLOGY V72 P430-439 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 6/10

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**AD NUMBER:** A309508

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Evaluation Of The Navy's Obesity Treatment Program.

**PERSONAL AUTHORS:** Trent, Linda K.; Stevens, Linda T.

**REPORT DATE:**, 1995

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-93-25

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study provided an evaluation of the effectiveness of the navy's three-tiered obesity treatment program: level I (command-directed remedial conditioning program), level II (weight- management counseling), and level III (inpatient obesity treatment). Height, weight, and body circumference measurements were obtained from 624 program participants at the beginning of the program, then at 6 weeks, 6 months, and 12 months after the start of the program. There was a significant reduction in percent body fat after 1 year in all three program tiers. Results demonstrated a sustained downward trend through the 6-month data point, then a plateau between 6 and 12 months. The number of participants meeting the navy's body fat criteria improved from 1% to 27%, and the number of participants classified as obese dropped from 63% to 43%. However, absolute losses (mean percent body fat) were small: -3.6% fat for men, -4.5% fat for women after 1 year. Approximately 4.6% of the sample were discharged from the navy for obesity. Level iii, which employs diverse treatment techniques, was the most effective program in helping participants to reduce body fat. Level i, which is primarily an exercise program, was the least effective. An aggressive and supportive aftercare program is recommended to enhance weight loss among program graduates.

**DESCRIPTORS:** \*Naval Personnel, \*Military Medicine, \*Physical Fitness, \*Body Weight, \*Obesity, Navy, Patterns, Losses, Patients, Women, Weight Reduction, Graduates, Adipose Tissue.

**IDENTIFIERS:** Weight Management Programs, Pe63706n, Wu6106

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MILITARY MEDICINE, V160 N7 P326-330, 1995. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/1, 6/1, 5/9

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**AD NUMBER:** A309112

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Evaluation Of Usariem Heat Strain Model: Mopp Level, Exercise Intensity In Desert And Tropic Climates.

**PERSONAL AUTHORS:** Cadarette, Bruce S.; Montain, Scott J.; Kolka, Margaret A.; Stroschein, Leander A.; Matthew, William T.

**REPORT DATE:** Apr, 1996

**PAGINATION:** 55p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-Tr-T96-4

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRMC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Usariem has developed a series of models which predict physiologic strain (body temperature, heart rate sweating rate) and tolerance time to heat strain under a variety of conditions. These heat strain models have been incorporated into the p2nbc2 decision aid, janus, mercury and other military modeling efforts. The present study was conducted to fill-in information gaps for the database and provide validation of current algorithms. Specifically, this study reports physiologic information on the effects of: (1) light, moderate and hard exercise intensities; (2) mopp 1 and mopp 4; (3) desert (43 deg c (109 deg f), 20% rh) and tropic (35 deg c (95 deg f), 50% rh) climates. The physiologic information from

these conditions were compared to values predicted by the ariem, hsda and ariem-exp (experimental) models. These experiments demonstrated: (1) harder work levels resulted in greater heat strain, which was more pronounced in mopp 4 than in mopp 1; (2) the energy cost of exercise and the heat strain was greater in mopp 4 than mopp 1 for the same task; (3) physiologic strain and tolerance times were similar during exercise in the two climates with matched wbgt temperatures; (4) the ariem and hsda models were inaccurate in predicting the experimental core temperature responses, conservatively predicting core temperature responses, and over predicting tolerance time; (5) the ariem-exp model accurately predicted core temperature responses, especially at moderate and hard exercise intensities, but it also over predicted tolerance time. These data indicate that the experimental model should replace the ariem and hsda models to predict soldier responses in hot climates.

**DESCRIPTORS:**\*Tropical Regions,\*Heart Rate,\*Heat Stress(Physiology),\*Exercise(Physiology),\*Heat Tolerance, Data Bases, Algorithms, Temperature, Cores, Validation, Models, Army Personnel, Energy, Reports, Intensity, Rates, Time, Costs, Response, Strains(Biology), Tolerance, Climate, Mercury, Physiology, Physical Fitness, Protective Clothing, Deserts, Tolerances(Physiology), Hot Regions, Body Temperature.

**FIELDS AND GROUPS:** 6/10, 4/2

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**AD NUMBER:** A308696

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Physical Task Performance: Complexity Of The Ability-Performance Interface.

**PERSONAL AUTHORS:** Vickers, Ross R., Jr

**REPORT DATE:** Sep 05, 1995

**PAGINATION:** 23p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-95-30

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Simple, general models may provide useful representations of physical abilities and task performance. Physical abilities can be represented by 3 to 6 general dimensions summarizing individual differences on a range of specific physical ability tests (e.g., hogan, 1991; itrers, gebhardt, crump, & fleishman, 1993). Similar simplicity may suffice to represent the physical task domain. When people perform two or more physically demanding tasks, individual differences in task performance are moderately to strongly positively correlated (arnold, rauschenberger, soubel, & guion, 1982; beckett & hodgdon, 1987; robertson & trent, 1985). This correlation pattern suggests the existence of one or more general dimensions underlying differences in performance on the specific tasks. With these observations as a starting point, this paper examines the utility of general dimensions as summary measures to characterize task performance and to describe physical ability-task performance relationships. The potential value of modeling ability-performance relationships in terms of general dimensions can be illustrated by comparison to more common approaches to modeling physical task performance. Standard practice for predicting physical task performance involves measuring performance on one or more tasks

and administering a battery of physical ability measures. Procedures such as stepwise regression then are applied to select a set of ability measures to predict each task. The result is one predictive equation per criterion with different predictors and/or predictor weights for each criterion. The set of regression equations defines the performance prediction model for the task set.

**DESCRIPTORS:**\*Performance(Human),\*Task Forces,\*Physical Fitness,\*Marine Corps Personnel,\*Aptitude Tests, Measurement, Jobs, Skills, Job Training, Predictions, Models, Naval Personnel, Navy, Strength(Physiology), Regression Analysis, Correlation, Weight, Patterns, Job Satisfaction.

**IDENTIFIERS:** Physical Tasks, Task Structures, Pe63706n, Wu6417

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A307829

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Hydration Assessment During Cold-Weather Military Field Training Exercises,

**PERSONAL AUTHORS:** O'brien, Catherine; Freund, Beau J.; Sawka, Michael N.; Mckay, James; Hesslink, Robert L.

**REPORT DATE:**., 1996

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** To quantify the magnitude of dehydration and to identify predictors of dehydration by utilizing changes in total body water (tbw), 24 male marines were studied during an 8d moderately cold-weather (1-3 deg c) training exercise. Training consisted of approximately 12 h/d of moderately intense activity. Variables examined included body composition, tbw, and various blood and urinary parameters indicative of hydration. Dietary food and fluid records were also maintained. Body composition changes were consistent with the high energy expenditure and insufficient energy intake. Despite a decrease in tbw, significant dehydration as assessed by blood and urinary parameters did not occur over the 8d period, therefore no relationships were found between tbw and any of the clinical indicators of dehydration. The change in tbw was reflective of a decrease in lean body mass. These data suggest that during cold-weather military field exercise, despite high activity levels and a negative energy balance, body fluid balance can be maintained when particular attention is paid to fluid intake.

**DESCRIPTORS:**\*Stress(Physiology),\*Military Exercises,\*Physical Fitness,\*Body Fluids,\*Cold Weather,\*Dehydration,\*Cold Tolerance, Predictions, Training, Parameters, Water, Mass, Energy, Intensity, Clinical Medicine, High Energy, Balance, Fluids, Human Body, Records, Food, Diet, Indicators, Field Conditions, Blood, Urine, Hydration.

**IDENTIFIERS:**\*Military Field Training Exercise, Tbw(Total Body Water), Dietary Food, Body Composition

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN ARCTIC MEDICAL RESEARCH, V55 P20-26, 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 6/10



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**AD NUMBER:** A307175

**CORPORATE AUTHOR:** Army Research Lab Aberdeen Proving Ground Md

**UNCLASSIFIED TITLE:** The Influence Of Physical Fitness Training On The Manual Material-  
Handling Capability And Road-Marching Performance Of Female Soldiers.

**PERSONAL AUTHORS:** Knapik, Joseph J.; Gerber, John

**REPORT DATE:** Mar, 1996

**PAGINATION:** 85p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Arl-Tr-1064

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** ARL/APG

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study examined the influence of a combined resistance and aerobic training program on the manual material- handling (mmh) capability and road-marching performance of female soldiers. Subjects were 21 healthy women, 13 of whom completed all phases of the investigation. They trained for 14 weeks, performing progressive resistance training 3 days per week and running with interval training 2 days per week. Compared to values obtained before training, soldiers increased the maximum mass they could lift from floor to knuckle height by 19% (68 to 81 kg,  $p<0.001$ ) and from floor to chest height by 16% (49 to 57 kg,  $p<0.001$ ). They improved by 17% their ability to lift 15 kg as many times as possible in 10 minutes (167 to 195 lifts,  $p<0.001$ ), while perception of effort (measured with the borg rating of perceived exertion) did not change. They improved by 4% their maximal effort road march time over a 5-km distance, carrying a 19-kg load mass (44.7 to 43.1 min,  $p=0.02$ ). While total body mass did not change, body fat mass was reduced by 9% (18.8 to 17.2 kg,  $p=0.036$ ) and fat-free mass increased by 6% (48.2 to 51.0 kg,  $p<0.001$ ). A short-term physical training program, conducted about 1 hour per day, 5 days per week can substantially improve female soldiers' mmh capability, result in a small improvement in road-marching ability, and provide favorable changes in body composition (increased fat-free mass and decreased body fat).

**DESCRIPTORS:** \*Army Personnel, \*Manual Operation, \*Physical Fitness, \*Women, \*Materials Handling, Training, Materials, Mass, Short Range(Time), Human Body, Thorax, Handling, Aerobic Processes, Height, Perception, Adipose Tissue.

**IDENTIFIERS:** Muscle Contraction, Body Composition, Muscle Strength, Pe62716a

**FIELDS AND GROUPS:** 6/5, 5/9, 6/10

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**AD NUMBER:** A307149

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Tobacco Use And Injury Risk Among Military Parachutists,

**PERSONAL AUTHORS:** Amoroso, Paul J.; Dettori, J. R.; Reynolds, K. L.; Schneider, G. A.; Lavin, P. T.

**REPORT DATE:** Mar 06, 1995

**PAGINATION:** 5p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Abstract Presented At International Conference On Injury Prevention And Control (3rd), 18-22 Feb 96, Melbourne, Australia.

**ABSTRACT:** Purpose: studies of u.s. army soldiers have found higher rates of injury among smokers. We tested this relationship for individuals performing military parachuting an activity associated with high-energy collisions and relatively high injury rates. Methods: three groups of u.s. army soldiers (n=1706) participated in one of three prospective studies. The first two groups were students participating in basic airborne training in either 1991 (n=449) or 1992 (n=848). Each student made five parachute jumps over five days. The third group was experienced soldiers from a combat ready airborne unit (n=409) each completing a single jump in 1993. All individuals were given questionnaires prior to their jumps. The outcome measure was medically attended injuries. Logistic regression was used to analyze injury type, use of cigarettes, use of smokeless tobacco, age, gender, and physical fitness test scores (maximum number of situps in two minutes, maximum number of pushups in two minutes, and a two-mile timed run). Results: the risk of an injury was lower among students than combat jumpers (6.8/100 lumos vs. 130/1000 jumps).

**DESCRIPTORS:**\*Parachutes,\*Wounds And Injuries,\*Military Training,\*Parachutists,\*Tobacco Plants, High Rate, Risk, Students, Performance Tests, Army Personnel, Airborne, Regression Analysis, High Energy, Logistics, Physical Fitness, Questionnaires, Scoring, Collisions, Smokeless Propellants, Tobacco Smoking.

**IDENTIFIERS:** Chewing Tobacco

**LIMITATIONS (ALPHA):** AVAILABILITY: DOCUMENT PARTIALLY ILLEGIBLE.

**FIELDS AND GROUPS:** 5/9, 1/3.8, 6/5, 6/11

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**AD NUMBER:** A307095

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Influence Of Age And Physical Training On Measures Of Cardiorespiratory And Muscle Endurance,

**PERSONAL AUTHORS:** Knapik, Joseph J.; Banderet, Louis E.; Vogel, James A.; Bahrke, Michael S.; O'conner, John S.

**REPORT DATE:**, 1996

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M95-8

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study describes associations between age, physical training and measures of muscle and cardiorespiratory endurance. The subjects were 5079 healthy male soldiers aged 18-53 years from 14 army installations in the united states. The subjects completed as many push-ups as possible in 2 min, as many sit-ups as possible in 2 min, and performed a timed 3.2-km run. The training level was assessed by asking the subjects two questions about the frequency (times each week) and duration (hours each week) of their physical training. For all three performance events there were significant declines with age, but at a given age, groups that trained more demonstrated higher performance levels than groups that trained less. For the 3.2-km run, the age-associated rate of performance decline was less in the groups that trained more, and greater amounts of training resulted in progressively less performance decline with age. For push-ups and sit-ups, the training level did not

systematically influence the age-related rate of performance decline. The results suggest that tasks involving different physiological systems may be influenced differentially by age and training. Training may slow age-associated performance declines in tasks requiring cardiorespiratory endurance but not in tasks requiring muscle endurance.

**DESCRIPTORS:**\*Respiratory System,\*Physical Fitness,\*Muscles,\*Cardiovascular System,\*Heart,\*Endurance(Physiology), United States, High Rate, Training, Army Personnel, Performance(Human), Aging(Physiology), Endurance(General), Level(Quantity), Physiology, Males, Cardiac Patients.

**IDENTIFIERS:** Muscle Contraction, Exertion

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN EUROPEAN JNL. OF APPLIED PHYSIOLOGY, V72 P490-495, 1996. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 5/9, 6/4

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**AD NUMBER:** A307058

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Frequency Of Training, And Past Injuries As Risk Factors For Injuries In Infantry Soldiers.

**PERSONAL AUTHORS:** Reynolds, K.; Pollard, J.; Cunero, J.; Knapik, J.; Jones, B.

**REPORT DATE:** Nov 13, 1990

**PAGINATION:** 5p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Major objectives of army infantry training are development of endurance and load carriage ability. These objectives are achieved by frequent running and road marching. Height, weight, % body fat, and physical fitness were measured and information about training and past injuries were obtained by questionnaire. Incidence of new injuries was documented by a periodic review of medical records of all subjects. Mean age of subjects was 19.1 years, height 69.1 in, weight 162.9 lbs, % body fat 14.7%. Over the observed period 29% suffered one or more lower extremity training injuries. Trends of significantly increased risk of injury with increased frequency of running and marching were observed. Frequency: (days/wk) 1 or less 2 - 3, 4 or more p-value; running risk (%) 0.0, 26.6, 32.7, 0.01; marching risk (%) 6.3 20.8 32.4 0.03. Those soldiers who had no past injury causing loss of school or work time were at lower risk of current injury (25.6%) than those injured in the last 2 yrs (44.3%, p 0.04). These data suggest that more frequent weight-bearing training and recent

**DESCRIPTORS:**\*Army Personnel,\*Wounds And Injuries,\*Infantry Personnel,\*Endurance(Physiology), Frequency, Risk, Schools, Training, Army Training, Infantry, Time, Medicine, Endurance(General), Roads, Physical Fitness, Losses, Records, Extremities.

**IDENTIFIERS:** Infantry Soldiers, Running, Marching, Musculoskeletal Injuries

**LIMITATIONS (ALPHA):** AVAILABILITY: DOCUMENT PARTIALLY ILLEGIBLE.

**FIELDS AND GROUPS:** 6/5, 5/9, 15/6

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**AD NUMBER:** A307022

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Association Of Training Injuries And Physical Fitness In U. S. Army  
Combat Engineers.

**PERSONAL AUTHORS:** Reynolds, K.; Knapik, J.; Hoyt, R.; Mayo, M.; Bremmer, J.

**REPORT DATE:** Nov, 1993

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Combat engineers engage in heavy construction activities but like other army units, also perform weightbearing physical activities such as running and marching. We investigated associations between training injuries and physical fitness over a one year period in 147 combat engineers. Incidence of new musculoskeletal injuries was documented by a complete review of each soldier's medical record. Physical fitness was measured by the standard army physical fitness test. Soldiers performed the minimum number of pushups (pu) in 2 min, the maximum number of situps (su) in 2 min and a 2-mile run for time. Sixty-eight percent of the soldiers suffered one or more training injuries. Subjects performed an average (+sd) 61+13 pu, 65+11 su and ran an average time of 14.6+ 1.3 min. Subjects were divided into quartiles based on their scores in each fitness test. A 2x4 chi-square test (cst) and linear trend test (ltt) were used to compare quartiles (q) for those injured at least once vs those not injured. For run time, soldiers in the fastest quartile were at lower injury risk than those in the slower quartiles (cst p=0.03, ltt p=0.02, risk ratio for qi vs q4=1.5).

**DESCRIPTORS:**\*Army Personnel,\*Construction,\*Wounds And Injuries,\*Physical Fitness,\*Musculoskeletal System,\*Military Engineers, Test And Evaluation, Ratios, Warfare, Risk, Training, Physical Properties, Patterns, Army, Army Operations.

**IDENTIFIERS:**\*Musculoskeletal Injuries, Combat Engineers, Weightbearing Physical

**FIELDS AND GROUPS:** 6/5, 5/9, 6/10

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**AD NUMBER:** A307020

**CORPORATE AUTHOR:** Naval Medical Research Inst Bethesda Md

**UNCLASSIFIED TITLE:** The Relationship Between The U.S. Navy Fleet Diver Physical  
Screening Test And Job Task Performance,

**PERSONAL AUTHORS:** Marcinik, E. J.; Hyde, D. E.; Taylor, W. F.

**REPORT DATE:**, 1995

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nmri-95-94

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The development of job-related selection and training methods will improve safety and lead to substantial cost savings to the u.s navy through enhanced screening and productivity. The present investigation determined the extent to which the current u. S. Navy fleet diver physical screening test predicted performance of five representative physically demanding job tasks. Subjects were 146 male diver candidates (age 25.1 +/- 4.3

years, x +/- sd), range 18-37 years) undergoing training at the naval diving and salvage training center, panama city, fl. Results indicate the current u.s. navy fleet diver physical screening test provides a poor estimate of representative job task performance for the population of diver candidates tested. A finding of particular operational significance was that a substantial number of diver candidates who passed current physical screening test standards were unable to complete (i.e., failed) the tool-bag swim (18.5%) and fin-kick (25.7%) tasks. Results suggest the current screening test has limited utility for physical selection purposes and underscore the need for developing a requirements-based selection battery to ensure that diver physical capabilities are aligned to the job.

**DESCRIPTORS:**\*Jobs,\*Training,\*Performance(Human),\*Physical Properties,\*Physical Fitness,\*Divers, Test And Evaluation, Navy, Teaching Methods, Population, Costs, Fleets(Ships), Productivity, Savings, Selection, Diving, Salvage.

**IDENTIFIERS:** Pe63713n, Wudn244515, Wu1428

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE P320-324 1995. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 5/2, 5/9

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**\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\***

**AD NUMBER:** A306906

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Smoking And Injury Risk Among Female U.S. Army Basic Combat Trainees,

**PERSONAL AUTHORS:** Dettori, Joseph R.; Reynolds, Kathy L.; Amoroso, Paul J.; Barnes, Julie A.; Westphal, Kathleen A.

**REPORT DATE:** Mar 03, 1995

**PAGINATION:** 4p

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Purpose: it has been reported that u.s. army male soldiers who smoke are at higher risk for training injuries. The purpose of this study is to determine the effect of smoking on the risk of musculoskeletal injuries among women undergoing initial basic combat training in the united states army. Method: we conducted a prospective cohort study of 165 female army basic trainees over an eight week training period. Physician assistants documented all musculoskeletal injuries in those who reported for care to the medical treatment facility. We further sub-classified all injuries as traumatic (those resulting from a single event) or overuse (those with an insidious onset thought to be caused by cumulative trauma). Study personnel collected demographics, self reported smoking habits and pre-training fitness measures (the maximum number of pushups in two minutes, the maximum number of situps in two minutes and a two-mile timed run). Results: sixty- seven percent (110/165) of the trainees sustained 205 injuries during the training period (crude injury rate, 62 injuries per 100 soldiers per month).

**DESCRIPTORS:**\*Military Forces(United States),\*Smoke,\*Military Medicine,\*Wounds And Injuries,\*Musculoskeletal System,\*Medical Services,\*Health Care Facilities,\*Trauma,

Warfare, Risk, Training, Army Personnel, Rates, Personnel, Males, Military Training, Physical Fitness, Trainees, Army, Physicians, Women, Combat Forces, Habits.  
**IDENTIFIERS:**\*Musculoskeletal Injuries, Crude Injury Rate, Self Reported Smoking Habits  
**LIMITATIONS (ALPHA):** AVAILABILITY: (PUBLISHER'S NAME, CITY, STATE, ZIP CODE.) HC OR PC PRICE. NO COPIES FURNISHED BY DTIC.  
**FIELDS AND GROUPS:** 6/4, 5/9, 6/5

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**AD NUMBER:** A306904

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Injury Risk Factors Among Male And Female Army Trainees,

**PERSONAL AUTHORS:** Bell, Nicole S.; Jones, Bruce H.

**REPORT DATE:** Feb 17, 1993

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study documents incidence of and risk factors for injury among women and men during 8 wks of army basic training. Participants were 745 trainees (293 women, 452 men). Data included demographics (age, race, sex), anthropometrics (ht, wt, %fat), fitness scores (pushups, situps, run time) and injury incidence. Injury data were obtained by review of every participant's medical record. The crude relative risk (rr) of injury, for women V men, was 2.1 (60% injured V 29%) and the crude rr for time-loss injury was 2.3 (42% V 19%). There was a significant trend of increasing injury risk for successively slower quintiles of run times (women: risks, fast to slow= 46%, 57%, 62%, 71%, 67%, mh trend p=.005; men: risks, fast to slow= 21%, 21%, 30%, 33%, 41%, mh trend p=.0005). Adjusted rr for women vs men, stratified on run time, was 1.4 (p=. 01). In a logistic regression model containing age, race, sex, ht, %bd, situps, and run time, only run time was significantly associated with odds bf injury per se may be less important than physical fitness in predicting injury among very active young adults.

**DESCRIPTORS:**\*Army Training,\*Wounds And Injuries,\*Military Training,\*Physical Fitness, Mathematical Models, Risk, Regression Analysis, Documents, Logistics, Trainees, Army, Women, Adults, Females, Sex, Anthropometry.

**FIELDS AND GROUPS:** 6/5, 15/1

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**AD NUMBER:** A306808

**CORPORATE AUTHOR:** Army Research Lab Aberdeen Proving Ground Md

**UNCLASSIFIED TITLE:** Physical Fitness Training To Improve The Manual Material Handling Capability Of Women.

**PERSONAL AUTHORS:** Knapik, Joseph J.; Gerber, John

**REPORT DATE:** Apr, 1996

**PAGINATION:** 102p Media Cost: \$ 11.00 Price Code: Ab

**CONTRACT NUMBER:** MIPR-95MM5590

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRMC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study examined the influence of a combined resistance and aerobic training program on the manual material handling (mmh) capability and road marching performance of female soldiers. Subjects were 21 healthy women, 13 of which completed all phases of the investigation. They trained for 14 weeks, performing progressive resistance training 3 days per week, and running with interval training 2 days per week. Compared to values obtained before training, soldiers increased the maximum mass they could lift from floor to knuckle height by 19% (68 to 81 kg, p 0.001) and from floor to chest height by 16% (49 to 57 kg, p 0.001). They improved by 17% their ability to lift 15 kg as many times as possible in 10-min (167 to 195 lifts, p 0.001), while perception of effort (measured with the borg rating of perceived exertion) did not change. They improved by 4% their maximal effort road march time over a 5 km distance, carrying a 19-kg load mass (44.7 to 43.1 min, p=0.02). While total body mass did not change, body fat mass was reduced by 9% (18.8 to 17.2 kg, p=0.036) and fat free mass increased by 6% (48.2 to 51.0 kg, p 0.001). A short term physical fitness program, conducted about 1 hour per day, 5 days per week can substantially improve female soldiers' mmh capability, result in a small improvement in road marching ability, and provide favorable changes in body composition.

**DESCRIPTORS:** \*Human Body, \*Manual Operation, \*Physical Fitness, \*Women, \*Aerobic Processes, \*Materials Handling, Training, Army Personnel, Mass, Fats, Thorax, Height, Perception, Adipose Tissue.

**IDENTIFIERS:** Strength Training, Body Composition, Perceived Exertion, Defense Women's Health Research Program

**FIELDS AND GROUPS:** 6/5, 5/8, 6/10

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**AD NUMBER:** A306073

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** High Injury Rates Among Female Army Trainees: A Function Of Gender?

**PERSONAL AUTHORS:** Bell, Nicole S.; Mangione, Thomas W.; Hemenway, David; Amoroso, Paul J.; Jones, Bruce H.

**REPORT DATE:** May, 1994

**PAGINATION:** 23p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Injuries are common among those who engage in vigorous physical activity, particularly among military basic trainees. This is a unique population for the study of injuries as many potential confounders are controlled by the highly standardized environment. Previous studies of injury have identified body composition, physical fitness and gender as risk factors. Studies also indicate that women enter the army less physically fit than their male counterparts. Hence, it is not clear whether the higher incidence of injuries among female trainees is due to their lower fitness or to gender per se. Eight-hundred and sixty-one trainees were followed during their 8 week basic training course. Demographic characteristics, body composition and physical fitness were assessed. Female trainees experienced twice as many injuries as male trainees, 57% versus 27%, respectively (rr = 2.1). When the injury and gender relationship was stratified on aerobic fitness, the gender differential was no longer significant.

**DESCRIPTORS:**\*Military Personnel,\*Physical Properties,\*Wounds And Injuries,\*Military Training,\*Physical Fitness,\*Women, Environments, High Rate, Risk, Predictions, Training, Multivariate Analysis, Population, Standardization, Human Body, Males, Courses(Education), Trainees, Army, Stratification, Females.

**IDENTIFIERS:** Gender

**FIELDS AND GROUPS:** 6/5, 5/9, 6/10

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**AD NUMBER:** A306072

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Race And Injury Among Army Basic Trainees,

**PERSONAL AUTHORS:** Bell, Nicole; Amoroso, Paul; Hemenway, David; Mangione, Tom; Jones, Bruce

**REPORT DATE:** May, 1994

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Injuries due to exercise and training are cammon, particularly in army populations. Few studies have examined the relationship between race and such injuries. Eight-hundred and sixty-one male and female army trainees were followed over their 8 week basic training course. This program, with its standardized activities and similar risk exposures provides a unique study environment. Demographic, body composition and physical fitness characteristics were measured on all volunteers. Fifty-two percent were white and 39% black. White trainees were significantly fatter and weaker than black trainees. White female trainees were significantly more likely to experience a time-loss injury than black female trainess (52% vs 32%,  $er = 1.6$ ,  $p < .05$ ). White males had slightly higher rates than black male trainees, 19% and 14%, respectively ( $er = 1.4$ ,  $p < .05$ ). The differences in overall injury rates could not be explained by differences in body composition and physical fitness. For time-loss injuries, white female trainees had 3.7 times greater odds of injury than black female trainees, even after controlling for other factors ( $p < .05$ ).

**DESCRIPTORS:**\*Army Personnel,\*Wounds And Injuries,\*Military Training,\*Physical Fitness,\*Musculoskeletal System, Environments, High Rate, Training, Physical Properties, Volunteers, Rates, Standardization, Human Body, Males, Courses(Education), Trainees, Army, Females, Black(Color).

**FIELDS AND GROUPS:** 6/5, 5/9, 6/4

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**AD NUMBER:** A304895

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Physical Demands Of U.S. Navy Sea-Air-Land (Seal) Operations.

**PERSONAL AUTHORS:** Prusaczyk, W. K.; Stuster, J. W.; Goforth, H. W., Jr.; Smith, T. S.; Meyer, L. T.

**REPORT DATE:** Oct, 1995

**PAGINATION:** 78p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-95-24

**MONITOR ACRONYM:** XB



**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study identified the physical demands of u.s. navy sea-air-land (seal) operations. Seals were interviewed regarding missions conducted and an inventory of missions and mission segments performed was developed. Questionnaires were developed from the inventories once they were judged comprehensive and accurate. Seals rated each task on difficulty, frequency performed, and importance to mission success. For each task, scores were summed to obtain a 'composite' score. The composite score mitigated the effect of difficult tasks that were less important or infrequently performed when missions and segments were compared. Eighty-two seals averaging 11 years of experience (range 2-28 years) participated. Of the 15 missions rated highest on the composite score, 6 were 'overland', 5 were 'across the beach,' and 4 were 'ship attacks.' the highest ranking mission had been performed by 85% of the seals, and 8 (of the 15 highest) missions had been performed by >50%. Of the 20 highest rated mission segments, 9 involved 'lifting/dragging/carrying/climbing,' 6 involved 'walking/ hiking/skiing,' 3 involved 'swimming/diving,' and 2 involved 'jumping/bumping.' the highest ranking mission segment had been performed by 90% of the seals and over 50% performed 18 of the 20 most important mission segments. These data will provide a basis for the development of mission-specific physical training programs.

**DESCRIPTORS:** \*Military Operations, \*Military Personnel, \*Ships, \*Physical Fitness, \*Endurance(Physiology), Attack, Walking, Missions, Inventory, Ranking, Questionnaires, Diving, Swimming, Climbing, Skiing.

**IDENTIFIERS:** Abilities Analysis, Military Missions, Seal(Seal Air Land), Special Warfare, Task Analysis, Pe60407n

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A304189

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Expert Panel Review Of Naval Special Warfare Calisthenics: Sports Medicine Conference Summary.

**PERSONAL AUTHORS:** Meyer, L. T.; Smith, T. S.; Friedlander, A. L.; Moore, J.

**REPORT DATE:** Oct, 1995

**PAGINATION:** 73p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-Td-95-5e

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Nsw commands adhere to intensive physical training programs placing them at high risk for musculoskeletal injury. The objective of this research was to review the nsw calisthenic program and make recommendations to improve the safety and efficacy of the exercises. A panel of experts was assembled that included sports medicine specialists (physicians, physical therapists, biomechanists, exercise physiologists, and certified athletic trainers) from the united states olympic committee, san diego state university, united states air force academy, naval medical center san diego, naval hospital camp pendleton, san diego children's hospital, and applied futuristics. The panel reviewed the calisthenics and made a decision to eliminate, keep, or modify each exercise. The panel also recommended

calisthenics to be added to the program. Fifty-six exercises were reviewed. The panel recommended that 5 exercises be eliminated, 31 be kept, 17 be modified, and 16 be added. It was concluded that nsw personnel could benefit from minor modifications to their existing physical training program. Guidelines for a complete physical training program are needed.

**DESCRIPTORS:**\*Military Medicine,\*Wounds And Injuries,\*Physical Fitness,\*Musculoskeletal System,\*Naval Shore Facilities,\*Medical Examination, United States, High Rate, Risk, Training, Panels, Facilities, Intensity, Medicine, Specialists, Hospitals, Physicians, Recreation, Physiologists.

**IDENTIFIERS:**\*Calisthenics, Conditioning, Special Forces, Exercise, Pe60407n

**FIELDS AND GROUPS:** 6/4, 6/5

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**AD NUMBER:** A303749

**CORPORATE AUTHOR:** Library Of Congress Washington Dc Congressional Research Service

**UNCLASSIFIED TITLE:** Military Retirement And Personnel Management: Should Active Duty Military Careers Be Lengthened?

**PERSONAL AUTHORS:** Goldich, Robert L.

**REPORT DATE:** Nov 14, 1995

**PAGINATION:** 54p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** X1

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This report discusses whether the current average active duty military career should be lengthened. Proponents argue it could lead to cost savings resulting from more efficient personnel management, and would provide more scope for military career members to obtain more training and experience. Opponents tend to believe that lengthening average careers could result in career retention problems, and could lead to career personnel who were unfit to perform their military duties due to age and consequent lack of physical and mental vigor. Modifications of the current average active duty military career length could thus have substantial implications for the overall defense budget and the military effectiveness of the armed forces. The role of the congress in these matters is crucial, as overall retirement criteria and retired pay computation formulae for all military members, and detailed personnel management policies for officers, are established by statute. The dominant rationale for shorter careers has been the need to prevent the military effectiveness of the armed forces from being impaired by the presence, on active duty, of people physically incapable because of age of performing their military duties. A major secondary rationale for allowing, and requiring, retirement at comparatively earlier ages than most civilian retirement systems is providing a strong career retention incentive.

**DESCRIPTORS:**\*Military Personnel,\*Personnel Management,\*Careers,\*Active Duty,\*Retirement(Personnel), Military Requirements, Education, Cost Analysis, Performance(Human), Stress(Psychology), Aging(Physiology), Length, Fear, Mental Health, Physical Fitness, Personnel Retention, Military Occupational Specialties, Federal Budgets, Military Separation, Endurance(Physiology), Retraining.

**FIELDS AND GROUPS:** 5/9, 15/1

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**AD NUMBER:** A301047

**CORPORATE AUTHOR:** Army Research Lab Aberdeen Proving Ground Md

**UNCLASSIFIED TITLE:** Physical Fitness Training To Improve The Manual Handling Capability Of Women.

**PERSONAL AUTHORS:** Knapik, Joseph

**REPORT DATE:** Sep 01, 1995

**PAGINATION:** 37p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** MIPR-95MM5590

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRMC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This annual report provides preliminary data on a study examining the influence of a combined resistance and aerobic training program on the manual material handling (mmh) capability and road marching performance of female soldiers, subjects were 21 female soldiers, 13 of which completed all phases of the investigation. They trained for 14 weeks, performing progressive resistance training 3 days per week, and running and interval training 2 days per week. Compared to values obtained before training, soldiers increased the maximum mass they could lift from floor to knuckle height by 19% (68 to 81 kg,  $p < 0.001$ ) and from floor to chest height by 16% (49 to 57 kg,  $p < 0.001$ ). They improved by 17% their ability to lift 15 kg as many times as possible in 10 min (167 to 195 lifts,  $p < 0.001$ ). They improved by 4% their maximal effort road march time over a 5 km distance, carrying a 23-kg load mass (44.7 to 43.1 min,  $p = 0.02$ ). Data analysis is still ongoing. These preliminary findings indicate that a short term physical fitness program, conducted about 1 hour per day, 5 days per week can substantially improve female soldier's mmh capability and can result in a small improvement in road marching ability.

**DESCRIPTORS:** \*Performance(Human), \*Manual Operation, \*Physical Fitness, \*Handling, \*Materials Handling, Data Processing, Training, Army Personnel, Mass, Thorax, Women, Aerobic Processes, Height.

**IDENTIFIERS:** Load Carriage, Road Marching, Muscle Contraction, Resistance Training, Aerobic Training

**FIELDS AND GROUPS:** 13/9, 6/4, 23/2

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**AD NUMBER:** A300293

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Profiles Of Exercise History And Overuse Injuries Among United States Navy Sea, Air, And Land (Seal) Recruits.

**PERSONAL AUTHORS:** Shwayhat, A. F.; Linenger, J. M.; Hofherr, L. K.; Slymen, D. S.; Johnson, C. W.

**REPORT DATE:** 1994

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-93-3

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This prospective study examined running history as a risk factor for subsequent overuse injury in navy sea, air, and land (seal) recruits. Recruits preparing to be navy seals undergo 6 months of rigorous physical training

**DESCRIPTORS:** \*Physical Properties, \*Wounds And Injuries, \*Military Training, \*Physical Fitness, \*Naval Training, \*Underwater Demolition Teams, Setting(Adjusting), Risk, Naval Personnel, Multivariate Analysis, Estimates, Profiles, History, Recruits.

**IDENTIFIERS:** Pe62233n, Wu-6005

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN THE AMERICAN JNL. OF SPORTS MEDICINE, V22 N6 P835-840, 1994. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 5/8, 5/9

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**AD NUMBER:** A299974

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Naval Special Warfare Sports Medicine Conference Proceedings, Held In Coronado, California On 4-6 May 94.

**PERSONAL AUTHORS:** Meyer, Lisa T.; Moore, Joseph; Sopchick-Smith, Tracy

**REPORT DATE:** May 06, 1994

**PAGINATION:** 149p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Nhrc-Td-95-4d

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The first naval special warfare (nsw) sports medicine conference, held 4-6 may 1994, was initiated as a naval health research center research project in collaboration with the department of sports medicine, naval hospital camp pendleton. The conference was convened to review the nsw calisthenic program and identify exercises that were likely to cause injury. Representatives from the united states olympic committee, san diego state university, united states air force academy, naval medical center san diego, naval hospital camp pendleton, san diego children's hospital, and applied futuristic 5 composed an expert panel of sports medicine and exercise science specialists. Panel members reviewed nsw calisthenics and provided recommendations to improve both the safety and quality of nsw physical training. This document is an edited transcript of the 3-day conference. It includes: a section on the epidemiology of musculoskeletal injuries among nsw candidates and seal operators; a narrative of the panel's review of nsw calisthenics; recommendations on stretching, conditioning, and injury-prevention; and the panel's general recommendations regarding strength and conditioning programs.

**DESCRIPTORS:** \*Naval Warfare, \*Wounds And Injuries, \*Physical Fitness, \*Musculoskeletal System, United States, Symposia, Training, Panels, Facilities, Medicine, Personnel, Specialists, Hospitals, Naval Shore Facilities, Unconventional Warfare, Recreation, Panel(Committee), Epidemiology.

**IDENTIFIERS:** \*Musculoskeletal Injuries, Calisthenics, Sports Medicine, Bud/S, Seals, Strength Training, Pe60407n

**FIELDS AND GROUPS:** 6/5, 6/4, 15/6

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**AD NUMBER:** A299891

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Comparison Of Phonophoresis And Knee Immobilization In Treating Iliotibial Band,

**PERSONAL AUTHORS:** Bischoff, Craig; Prusaczyk, William K.; Sopchick, Tracy L.; Pratt, Nancy C.; Goforth, Harold W., Jr

**REPORT DATE:**, 1995

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-94-4

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Iliotibial band syndrome (itbs) is caused by irritation from the iliotibial band repetitively passing over the lateral femoral condyle during flexion and extension. This study evaluated the efficacy of two ltbs treatments: phonophoresis using ultrasound to transport 10% hydrocortisone into subcutaneous tissues, and knee immobilization. Students in basic underwater demolition/seal training diagnosed with ites were randomly assigned to group p (n = 13) receiving phonophoresis or group I (n = 13) receiving knee immobilization. Both groups received rest, ice, stretching, and ibuprofen. Subjects were examined daily until pain free. Endpoint was defined as running 1 mile on a treadmill without pain or stiffness. Group p was pain free on examination sooner (2 versus 8 days; p <0.001). A greater (p <0.005) proportion of subjects from group p (100%) recovered in less than 10 days than from group I (62%) . One subject from group p and three from group I experienced pain during the one-mile run.

**DESCRIPTORS:**\*Wounds And Injuries,\*Physical Fitness,\*Pain,\*Subcutaneous Tissue,\*Knee(Anatomy), Tissues(Biology), Students, Stiffness, Ice, Restraint, Irritation.

**IDENTIFIERS:**\*Iliotibial Band Syndrome, Phrnzophoresis, Overuse Injury, Sports Medicine, Phonophoresis, Knee Immobilization

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN SPORTS MEDICINE TRAINING AND REHABILITATION, V6 P1-6, 1995. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 6/4, 6/12

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**AD NUMBER:** A294499

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Navy Physical Readiness Test: Evaluation Of The Command Summary Report.

**PERSONAL AUTHORS:** Bourne, Mark J.; Conway, Terry L.; Coben, Pat

**REPORT DATE:** Jan, 1994

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-93-29

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Based on issues raised by the bureau of personnel and input from command fitness coordinators (cfcs), the naval health research center developed a 22-item survey to evaluate:

(a) physical readiness testing procedures, (b) remedial conditioning programs, and (c) command attitudes toward the navy physical readiness test (prt). In total, 343 cfcs returned anonymous surveys for analysis. Responses were divided into either "large" (i.e., greater than 524 personnel) or "small" (no less than 25 but no more than 524 personnel) and "shore" vs "nonshore" (i.e., surface ship, air, submarine) commands. The results of this initial study suggested that the majority of commands (86.8%) are conducting the prt, and remedial help is widely available. Command attitude toward the prt proved to be a very important factor in the perceived physical fitness of the command. Regression modeling predicted that the major factors associated with the physical readiness of the command were: (1) perceived physical fitness of the commanding officer, (2) effective remedial conditioning programs, (3) attendance at nutrition/diet programs, and (4) a high percentage of personnel actually taking the prt.

**DESCRIPTORS:** \*Naval Personnel, \*Operational Readiness, \*Navy, \*Physical Fitness, \*Nutrition, Test And Evaluation, Ships, Ocean Surface, Attitudes(Psychology), Test Methods, Regression Analysis, Military Commanders, Diet, Attitude(Inclination).

**IDENTIFIERS:** Pe63706n, Wu6106

**FIELDS AND GROUPS:** 6/8, 6/5, 6/10

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**AD NUMBER:** A293524

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Metabolic And Thermal Adaptations From Endurance Training In Hot Or Cold Water,

**PERSONAL AUTHORS:** Young, Andrew J.; Sawka, Michael N.; Levine, Leslie; Burgoon, Penny W.; Latzka, William A.

**REPORT DATE:**, 1995

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Metabolic and thermal adaptations from endurance training in hot or cold water. J. Appl. Physiol. 78(3): 793-801, 1995.-metabolic and thermal adaptations resulting from endurance training in hot vs. Cold water were compared. It was hypothesized that training in hot water would have greater effects on muscle glycogen use and blood lactate accumulation during exercise than training in cold water. Eighteen men exercised at 60% of maximal oxygen uptake while immersed in hot (n = 9) or cold water (n 9) for 1 h, 5 days/wk, for 8 wk. Training in hot water (35%c) potentiated body temperature increases during exercise, and training in cold water (20%c) blunted body temperature increases during exercise. Before and after training, cardiorespiratory and thermoregulatory responses and muscle glycogen and blood lactate changes were assessed during a 1-h exercise trial in hot water and, on a separate day using the same intensity, in cold water. Oxygen uptake was similar for all trials, averaging 2.0 % 0.1 l/min. It was observed that (1) training reduced glycogen use and lactate accumulation during exercise, with no difference between cold and hot water training groups in the magnitude of this effect; (2) lactate accumulation during exercise was the same in hot water as in cold water; and (3) skin temperature decreased more rapidly during cold-water exercise after than before training, with no difference between cold and hot water training groups in the magnitude of this effect. Thus,

exercise-induced body temperature increases are not an important stimulus for glycogen-sparing effects and blunted lactate accumulation associated with endurance training. Pg1.  
Jmd

**DESCRIPTORS:**\*Metabolism,\*Temperature Control,\*Physical Fitness,\*Body Temperature, Training, Reduction, Endurance(General), Muscles, Response(Biology), Accumulation, Cold Water, Blood, Hot Water, Skin(General), Oxygen Consumption, Lactates, Glycogen.

**IDENTIFIERS:** Muscle Glycogen

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN JNL. OF APPLIED PHYSIOLOGY, V78(3) P793-801, 1995. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 13/1

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**AD NUMBER:** A291925

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Epidemiology Of Soft-Tissue/Musculoskeletal Injury Among U.S. Marine Recruits Undergoing Basic Training

**PERSONAL AUTHORS:** Linenger, J. M.; West, L. A.

**REPORT DATE:**, 1992

**PAGINATION:** 5p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-90-24

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** We determined the incidence of soft-tissue/ musculoskeletal injury occurring during 8,076 recruit-months at risk among recruits undergoing basic training at marine corps recruit depot, san diego, california, between january and april 1990. We analyzed international classification of disease codes relating to initial visit for injuries, and calculated recruit- months from weekly strength figures. Training-related injuries occurred at a rate of 19.9 injuries per 100 recruit-months. Within the sports medicine clinic, iliotibial band syndrome (22.4%), patellar tendinitis (15.1%), and mechanical low back pain (11.4%) occurred most frequently, with rates per 100 recruit- month of 2.1, 1.4., And 1.1 respectively.

**DESCRIPTORS:**\*Wounds And Injuries,\*Physical Fitness,\*Marine Corps Personnel, Mechanical Properties, Marine Corps, Stress(Physiology), Diseases, Coding, Medicine, Supply Depots, Strength(General), Classification, Military Training, International, Pain, Outpatient Clinics, Recruits, Recreation, Epidemiology, Exercise(Physiology).

**IDENTIFIERS:**\*Musculoskeletal Injuries,\*Soft Tissues, Pe63706n, Wu6105

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MILITARY MEDICINE, V157 N9 P491-493 1992. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 5/9, 6/5

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**AD NUMBER:** A291500

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Adaptations To Three Weeks Of Aerobic/ Anaerobic Training In West Coast U.S. Navy Sea-Air-Land Personnel (Seals).

**PERSONAL AUTHORS:** Jacobs, I.; Prusaczyk, W. K.; Goforth, H. W., Jr

**REPORT DATE:** Dec, 1994

**PAGINATION:** 25p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-94-28

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Seals must optimize physical training "efficiency" i.e., adaptation per unit training time. This study was designed to determine if a single training program could simultaneously elicit aerobic and anaerobic adaptations. Seals were assigned to groups matched for initial aerobic and anaerobic fitness. Each group trained on cycle ergometers for 30 min 3 times per week as follows: continuous (cnt; n=8) at 70% vo sub 2peak; intermittent (tnt; n=6) at an average of 70% vo sub 2peak (10 x (2 min x 50% vo sub 2peak + 1 min x 110% v0 sub 2peak)); supramaximal (smx; n=6) (3-5 x 30 sec maximal effort sprints spaced over 30 min). Before and after 3 weeks of training, measurement of time to exhaustion (te), vo sub 2peak, and blood lactate concentration (la) during submaximal exercise were used to assess aerobic fitness, and maximal o2 deficit to evaluate anaerobic capacity. After training, vo sub 2peak did not change significantly for any group. Mean te increased (p<0.05) for all groups, averaging 18.1 to 19.3 min. La at 180 w decreased (p<0.05) for all groups, with pre to post changes of 3.3 to 2.1 mmol(dot)/l.. Maximal o2 deficit increased (p<0.05) for tnt and smx averaging 38 to 46 mlo2(dot)/kg, but did not increase (p>0.05) for cnt. There were no other significant differences across training groups for any training adaptations. The results indicate that tnt or smx training can induce rapid improvements in both aerobic and anaerobic fitness using a single 30-min bout.

**DESCRIPTORS:**\*Military Personnel,\*Naval Warfare,\*Aerobic Processes,\*Anaerobic Processes,\*Endurance(Physiology), Training, Capacity(Quantity), Performance(Human), Cycles, Time, Physical Fitness, Tnt, Concentration(Chemistry), Blood, Lactates, Ergometers.

**IDENTIFIERS:** Seal(Sea Air Land), Pe62233n, Wu6005

**FIELDS AND GROUPS:** 5/9, 6/4, 6/10

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**AD NUMBER:** A291290

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Physical Training Activities Of East Coast U.S. Navy Seals.

**PERSONAL AUTHORS:** Prusaczyk, W. K.; Goforth, H. W., Jr.; Nelson, M. S.

**REPORT DATE:** Dec, 1994

**PAGINATION:** 32p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-94-24

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This survey documents the aerobic and strength conditioning programs of east coast navy seals and evaluates the effectiveness of training programs. 75 east and 102 west coast seals completed a detailed physical training activity questionnaire. Questions



documented the type, duration, frequency, and intensity of exercise and the locations/facilities where the seals trained. The activities were evaluated according to american college of sports medicine guidelines for developing and maintaining aerobic and strength fitness. East and west coast seals train with sufficient volume and intensity to maintain current levels of aerobic fitness. Strength conditioning was also sufficient to maintain muscular strength. The findings indicate that east coast seals spent significantly ( $p < \text{or} = 0.05$ ) more time than west coast seals engaged in aerobic exercises. East coast seals performed calisthenics with greater ( $p < \text{or} = 0.05$ ) frequency, intensity, and duration than west coast seals, and ran the obstacle course with significantly greater frequency and intensity. The effectiveness of current training programs should be evaluated to ensure seals' ability to meet the most physically demanding tasks they may be required to perform. Additionally, physical training programs for seals must be evaluated to ensure they avoid detraining under conditions where appropriate equipment and training opportunities are limited (e.g., shipboard and submarine deployments). -bka

**DESCRIPTORS:** \*Combat Readiness, \*Performance(Human), \*Stress(Physiology), \*Physical Fitness, \*Naval Training, \*Seal Teams, Methodology, Coastal Regions, Survivability, Strength(Physiology), Cold Weather Operations, Surveys, Shipboard, Naval Warfare, Aerobic Processes, Cardiovascular System, Exercise(Physiology).

**IDENTIFIERS:** Pe62233n, Wu6005

**FIELDS AND GROUPS:** 6/4, 6/10, 15/1

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**AD NUMBER:** A288892

**CORPORATE AUTHOR:** Toronto Univ (Ontario)

**UNCLASSIFIED TITLE:** Differential Expression Of Interleukin-2 Receptor Alpha And Beta Chains In Relation To Natural Killer Cell Subsets And Aerobic Fitness.

**PERSONAL AUTHORS:** Rhind, S. G.; Shek, P. N.; Shinkai, S.; Shephard, R. J.

**REPORT DATE:** Aug, 1994

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** X5

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Both acute exercise and physical conditioning modulate functions of the immune system. Depending on the intensity and duration of effort, a single acute bout of physical activity can enhance, suppress or provoke no change in immune reactivities. Similarly, exercise training can induce favorable or unfavorable changes in resting immune function, with potential consequences for resistance to viral infections and cancer. Key elements in such changes are interleukin-2 (il-2), the interleukin-2 receptor (Il-2r), and the number and activity of circulating natural killer (nk) cells.

**DESCRIPTORS:** \*Cells, \*Physical Fitness, \*Lymphocytes, Functions, Training, Capacity(Quantity), Physical Properties, Resistance, Molecular Weight, Glycoproteins, Reactivities, Chains, Response(Biology), Monoclonal Antibodies, T Lymphocytes, Immunity, Monocytes, Circulation, Sense Organs, Cancer, Secretion, Virus Diseases\*, Exercise (Physiology).

**IDENTIFIERS:** Sports Medicine

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN INTERNATIONAL JNL. OF SPORTS MEDICINE, V15 N6 P311-318, AUG 94. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/1, 6/5

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**AD NUMBER:** A286352

**CORPORATE AUTHOR:** Walter Reed Army Inst Of Research Washington Dc

**UNCLASSIFIED TITLE:** Fatal Rhabdomyolysis Presenting As Mild Heat Illness In Military Training,

**PERSONAL AUTHORS:** Gardner, John W.; Kark, John A.

**REPORT DATE:** 1994

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** WRAIR

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Military training often requires demanding levels of physical performance in the field, but operational requirements may prevent optimal adjustments for internal heat generation and environmental heat stress. It is often impractical to provide desired levels of acclimatization, sleep, hydration, and modification of clothing to accommodate heat loss. Exertional heat illness is therefore a common problem in military field exercises, and there are many situations in which prevention and recognition become difficult. Although exertional heat illness is much more common during hot weather, pathogenesis begins with the internal effects of exercise on the body-generation of heat, injury to muscle cells and metabolic changes to facilitate heat loss. These syndromes can develop in cool weather, especially when clothing interferes with heat loss or when the extent of activity exceeds the level of fitness.

**DESCRIPTORS:** \*Illness, \*Sickle Cells, \*Military Training, \*Muscles, \*Fatigue(Physiology), Performance(Human), Heat Stress(Physiology), Sleep Deprivation, Hot Weather, Exercise(Physiology), Reprints, Death, Physical Fitness.

**IDENTIFIERS:** \*Rhabdomyolysis, Exhaustion(Physiology), \*Muscle Diseases, \*Sickle Cell Trait

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MILITARY MEDICINE, V159 N2 P160-163 1994. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 5/9, 6/10

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**AD NUMBER:** A285676

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Physical Fitness And Occupational Performance Of Women In The U.S. Army,

**PERSONAL AUTHORS:** Sharp, Marilyn A.

**REPORT DATE:** 1994

**PAGINATION:** 13p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The majority of jobs available to personnel entering the u.s. military services are physically demanding. Soldiers must maintain high levels of physical fitness to optimally perform their duties. High fitness levels are of particular importance to women in the military. Only strong, physically competent women will be fully successful in performing the physically demanding tasks of many occupational specialties. This paper describes the research that has been conducted to compare the physical fitness, physical training, and occupational performance of women and men in the u.s. army.

**DESCRIPTORS:**\*Army Personnel,\*Physical Fitness,\*Exercise(Physiology), Females, Surveys, Test And Evaluation, Military Standards, Performance(Human), Military Training, Males, Reprints.

**IDENTIFIERS:** Occupational Performance

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN WORK, V4 N2 P80-92, 1994.

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**FIELDS AND GROUPS:** 6/4, 6/10, 5/9

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**AD NUMBER:** A285615

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Progressive Resistance Training Program For Improving Manual Materials Handling Performance,

**PERSONAL AUTHORS:** Sharp, M. A.; Harman, E. A.; Boutillier, B. E.; Bovee, M. W.; Kraemer, W. J.

**REPORT DATE:**, 1993

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Occupations such as emergency care, fire fighting, and the military involve sudden bouts of high-intensity exertion, which are not performed on a regular or predictable basis. The physical stress of sudden, high-intensity exercise may result in a higher injury rate and diminished job performance in individuals who are not physically prepared. Occupations requiring frequent manual materials handling involve considerable exercise, and novice handlers can be expected to improve performance during the first month of employment simply by performing the task (genaidy, mital, and bafna, 1989; sharp and legg, 1988). Once an acceptable level of performance is researched, day-to-day task execution does not provide sufficient physical stress to produce further increases in performance or strength. Progressive resistance training (or weight training) is generally accepted as an effective adjunct to the practice of technique for improving performance in sports.

**DESCRIPTORS:**\*Materials Handling,\*Physical Fitness, Army Training, Tolerance(Physiology), Manual Operation.

**IDENTIFIERS:**\*Weight Training

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN WORK, V3 N3 P62-68 1993.

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**FIELDS AND GROUPS:** 5/9, 13/9

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**AD NUMBER:** A285467

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Exercise, Training And Injuries.

**REPORT DATE:**, 1994

**PAGINATION:** 15p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M94-11

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Although exercise results in a number of well documented physical fitness and health benefits, accruing such benefits entails a risk of exercise-related injuries. Muscular skeletal injuries occur frequently among fitness programme participants, runners, athletes, military recruits and others who engage in routine vigorous exercise. The same parameters of exercise (intensity, duration and frequency) that determine the positive fitness and health effects of physical training also appear to influence the risk of injuries. Studies of runners and other physically active groups have consistently demonstrated that greater duration and frequency of exercise are associated with higher risks of injury. However, the sports medicine literatures shows little association between exercise intensity and injuries, a finding which may be misleading. The strongest and most consistent association reported exists between greater total amounts of exercise and higher risks of injury. This is not surprising, since the total amount of exercise is the product of the intensity, duration and frequency of exercise.

**DESCRIPTORS:**\*Exercise(Physiology),\*Military Training,\*Wounds And Injuries, Military Exercises, Health, Musculoskeletal Diseases, Physical Fitness, Routing, Risk, Military Research, Benefits.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN SPORTS MEDICINE, V18 N3 P202-214, 1994. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/10, 5/9, 6/14

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**AD NUMBER:** A284974

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Evaluation Of A Newly-Designed, Dynamic Knee Extension Device For The Study Of Muscle Fatigue In Humans.

**PERSONAL AUTHORS:** Fulco, Charles S.; Lewis, Steven F.; Frykman, Peter N.; Boushel, Robert; Smith, Sinclair

**REPORT DATE:** Sep 02, 1994

**PAGINATION:** 40p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-Tr-94-18

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A device utilizing a simple pulley system was developed to study muscle fatigue during dynamic, submaximal exercise isolated to the knee-extensor muscles of one or both legs. The purposes of this study were to determine the following: (1) oxygen consumption requirements for various submaximal and maximal power outputs and to compare these data to values obtained from published reports using modified bicycle ergometers (criterion devices), (2) intraindividual test-retest variability, and (3) muscle fatigability during

exercise. On each of 2 separate days, 8 male volunteers (mean age 18.6 + or - 0.3 yr (se), weight 79.5 + or 5.1 kg, and height 179.1 + or - 2.0 cm) performed a graded, intermittent (4 min bouts) exercise test using the knee-extensor muscles of one leg to determine one-legged peak oxygen consumption. Maximal voluntary contractions (mvc) were obtained at the beginning, at 2 min, and at the end of each exercise bout as a means to monitor rate of muscle fatigue. The slope and intercept of the relationship of the increase in power output and oxygen consumption were 13.80 ml o<sub>2</sub>/watt and 470 ml/min, respectively, with r<sup>2</sup> = 0.96. These values for slope and intercept are similar to those reported previously: slopes 13.10 and 14.70 ml o<sub>2</sub>/watt; intercepts, 400 and 471 ml/min; and r<sup>2</sup> = 0.99. Also, there was minimal intra-individual variation (r<sup>2</sup> = 0.90) in oxygen consumption values for identical power outputs. Test-retest oxygen consumption values did not differ from a line of identity. Stepwise accelerations in muscle fatigability were discernable with small increments in exercise intensity and elapsed exercise time. Our device represents a low- cost, expanded capability alternative compared to previous units utilizing modified bicycle erg

**DESCRIPTORS:**\*Fatigue,\*Muscles,\*Knee(Anatomy),\*Performance(Human),\*Exercise(Physiology), Acceleration, Contraction, Costs, Dynamics, Ergometers, Height, Hoists, Hypoxia, Identities, Intensity, Legs, Low Costs, Males, Mean, Monitors, Output, Oxygen Consumption, Power, Rates, Requirements, Slope, Test And Evaluation, Time, Value, Variations, Volunteers, Weight, Walking, Physical Fitness.

**IDENTIFIERS:**\*Muscle Fatigue

**FIELDS AND GROUPS:** 6/3, 6/10

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**AD NUMBER:** A284855

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Prediction Of Performance On Two Stretcher- Carry Tasks,

**PERSONAL AUTHORS:** Rice, Valerie J.; Sharp, Marilyn A.

**REPORT DATE:**, 1994

**PAGINATION:** 10p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M94-12

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Pre-placement screening for physically demanding jobs should result in better job performance and fewer injuries, if the test components reflect job demands. The purpose of this study was to determine how seven strength measures, three army physical fitness test (apft) scores, and three physical descriptors relate to performance on two stretcher-carry tasks: (1) a repeated short- distance carry and (2) a continuous long-distance carry. Twelve men and 11 women completed both tasks with and without (hand-carry) a shoulder harness. Pearson product moment correlation coefficients compared independent variables and forward stepwise multiple regression analyses were used for predictions

**DESCRIPTORS:**\*Performance Tests,\*Personnel Selection,\*Strength(Physiology),\*Job Analysis,\*Rejection, Physical Fitness, Vulnerability, Harnesses, Reprints, Hand Held.

**IDENTIFIERS:** Apfi(Army Physical Fitness Test), Preplacement Screening

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN WORK, V4 N3, P201-210, 1994.

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**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A284677

**CORPORATE AUTHOR:** Armstrong Lab Brooks AFB Tx

**UNCLASSIFIED TITLE:** An Approach For Equalizing Test Scores For Skt-Exempt Afscs.

**PERSONAL AUTHORS:** Duncan, Robert E.

**REPORT DATE:** Jul, 1994

**PAGINATION:** 29p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Al/Hp-Tp-1994-0020

**MONITOR ACRONYM:** XC

**MONITOR SERIES:** AL\*

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The weighted airman promotion systems (waps) is used by the u.s. air force to promoted enlisted personnel to the grades of e-5 through e-7. Waps is composed of six weighted factors: specially knowledge test (skt), promotion fitness exam (pfe), enlisted performance reports (epr), time in grade (tig), time in service, and decorations (dec). Almost all air force specialty codes (afscs) use all six components of waps; however, a few afscs, like recruiters, do not have a skt developed for them. This results in an increased weighting given to longevity factors. This paper examines the effects on promotion of skt-exempt by doubling the weight given to the pfe. Sixteen skt-exempt afscs and twenty-three non-exempt afscs were compared after doubling the pfe scores for exempted afscs. Chi-square analyses revealed a large change in those promoted and those who were not ( $\chi^2=2919$ ,  $p < .0001$ ). Results indicate that if double-weighting is perceived to be fair and easy to understand by all enlisted personnel, a change in the system would result in the promotion of different personnel than is currently the case. Promotion decisions, speciality knowledge test(skt), promotion fitness examination(pfe), weighted airman promotion systems(waps), skt-exempt afsc, weighted pfe.

**DESCRIPTORS:**\*Promotion(Advancement),\*Performance Tests, Enlisted Personnel, Recruiters, Air Force Personnel, Military Occupational Specialties, Physical Fitness, Weighting Functions, Chi Square Test, Factor Analysis, Qualifications.

**IDENTIFIERS:** Pe62205f, Wual11211200.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A284389

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks

**UNCLASSIFIED TITLE:** The Factors Of Soldier's Load.

**PERSONAL AUTHORS:** Townsend, Stephen J.

**REPORT DATE:** Jun 03, 1994

**PAGINATION:** 122p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study examines the factors that cause or contribute to the overloading of dismounted combat soldiers in the army of the 1990's. This examination considers the body of literature on the subject, primarily post-world war ii, to identify what factors cause soldiers to carry too much weight into battle. The goals of the study are to identify the causative factors and increase leader understanding of the problem and review previous

recommendations towards solving it. From the research, the study identifies twelve factors that cause or contribute to soldier's overload: lack of appreciation of the problem, fear and fatigue, the fear of risk, the fire load, the drag of orthodoxy, failures of discipline and the enforcement of standards, myths of peacetime training, the nature of the soldier, lack of transport, the effects of technology, terrain and weather, and physical conditioning. Load, soldier's load, rucksack, physical conditioning, combat load, fighting load, sustainment load, approach march load, fear, fatigue, risk, training, transport, technology

**DESCRIPTORS:**\*Army Personnel,\*Military Doctrine,\*Army Operations,\*Physical Fitness,\*Mental Health, Approach, Army, Battles, Bodies, Drag, Failure, Fatigue, Fear, Overload, Peacetime, Risk, Standards, Terrain, Training, Transport, Warfare, Weather, Weight, Stress(Psychology).

**FIELDS AND GROUPS:** 6/5, 5/9, 5/8

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**AD NUMBER:** A283651

**CORPORATE AUTHOR:** Naval Aerospace Medical Research Lab Pensacola Fl

**UNCLASSIFIED TITLE:** Effects Of Weight Lifting On Intrathoracic Presures Generated By Anti-G Straining Maneuvers,

**PERSONAL AUTHORS:** Meyer, L. G.; Grissett, J. D.; Lamberth, J. G.

**REPORT DATE:**, 1994

**PAGINATION:** 19p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Namrl-1393

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NAMRL

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to assess the effects of physical fitness program on the ability to perform an anti-g straining maneuver (agsm). We used mouth-generated intrathoracic pressure (ip) as an index of effectiveness of the agsm. We compared changes in ip in experimental subjects who performed the agsm 5 times per week and participated in a weight lifting exercise program to ips in control subjects who performed the agsm 10 times per week and did not participate in a weight training program. Initial mean ips were 169 mmhg and 167 mmhg for the experimental and control groups respectively. After 6 weeks of exercise and agsm training, mean ip for the experimental subjects was 213 mmhg (26% increase). After 3 weeks of agsm training, mean ip for the control group was 202 mmhg (21% increase). The difference in pre- and post- ips between groups was not significant, but both groups significantly increased their ips with training. Multiple linear regression analysis showed that pulmonary vital capacity and the strength of several muscle groups were significant predictors of ip in the experimental group. We conclude that strength and anaerobic fitness may be important for the performance of an effective agsm. However, the agsm training alone appeared to improve the performance of the agsm as indicated by the increased ips. Acceleration, fitness, straining maneuver, weight lifting, intrathoracic pressure

**DESCRIPTORS:**\*Physical Fitness,\*Regression Analysis, Acceleration, Control, Indexes, Linear Regression Analysis, Maneuvers, Mean, Mouth, Muscles, Pressure, Training, Weight, Lifting Bodies, G Suits, Medical Research, Acceleration Tolerance, Heart Rate.

**IDENTIFIERS:** Pe63706n, Wudn247501.

**FIELDS AND GROUPS:** 6/10, 6/5, 6/4, 5/9

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**AD NUMBER:** A282719

**CORPORATE AUTHOR:** Israel Defence Forces Tel-Aviv Military Post 02149

**UNCLASSIFIED TITLE:** Energy Balance In Military Recruits Performing Intense Physical Efforts Under Extreme Climate Conditions.

**PERSONAL AUTHORS:** Bernstein, Ruth; Epstein, Y.; Shpilberg, O.; Lev, B.; Weiner, M.

**REPORT DATE:** Aug 20, 1993

**PAGINATION:** 23p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** DAMD17-92-J-2027

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRDALC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Energy cost of field operations has been as yet mainly predicted rather than measured accurately. We assessed the energetic status of soldiers exposed to intense physical activities and cold weather. Subjects performing routine field maneuver under conditions of 0 to 12 degrees c. 75-100% rh were followed up for 12 days. Energy expenditure (ee) was measured by the doubly labelled water technique, after a single, oral dosing of water. Energy intake (ei) was assessed from detailed food records filled up at real time and analyzed by computerized food charts. Energy balance was calculated as the difference between ei and ee for each subject

**DESCRIPTORS:** \*Physical Fitness, \*Army Personnel, Energy, Endurance(Physiology), Body Weight, Metabolism, Cold Weather, Food Consumption, Field Army, Army Operations, Case Studies.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A280759

**CORPORATE AUTHOR:** Naval Air Warfare Center Aircraft Div Warminster Pa

**UNCLASSIFIED TITLE:** Evaluation Of Cardiac Function In Humans Wearing Combat Edge Or The Tactical Life Support System When Exposed To +Gz-Acceleration.

**PERSONAL AUTHORS:** Shender, Barry S.

**REPORT DATE:** May, 1993

**PAGINATION:** 82p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nawcadwar-93086-60

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NAVAIR

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Current and future high performance aircraft operate in an envelope which requires both high altitude and acceleration protection for their aircrew. Such protection includes both positive pressure breathing (ppb) and an anti-g suit. These factors have been incorporated into a variety of different aircrew clothing ensemble concepts. As part of an ongoing us navy evaluation of these integrated life support ensembles, 7 subjects (6 male) were exposed to acceleration stress in the naval air warfare center aircraft division warminster human centrifuge while wearing the combined advanced technology enhanced design g ensemble (combat edge - ce) or the tactical life support system (tlss). The following report describes how cardiac function, as measured using impedance cardiography, was effected under +gz-stress will subjects wore these ensembles. It was



found that relaxed rapid onset +gz- tolerance (without anti-g straining maneuvers) was about 1.5 g higher when the subjects wore tlss as compared to ce. Stroke (si) and (ci) indices both decreased and heart rate rose as +gz-stress was increased regardless of the outfit worn. While the absolute value of these induces were somewhat higher when ce was worn, the relative change in si and ci (delta si, delta ci,) with respect to pre-stress values was smaller with the tlss ensemble. For both garments, delta si and delta ci was greatest at +6 gz (pbg = 24 mmhg). However, tlss, delta si and delta ci were markedly reduced with pbg levels > 30 mmhg (+6.5 gz). Impedance cardiography, stroke volume, g-protection, combat edge, tlss.

**DESCRIPTORS:**\*Cardiography,\*Aerospace Medicine,\*G Suits,\*Pressure Breathing, Acceleration, Aircraft, Altitude, Centrifuges, Clothing, Deltas, Division, Edges, Extremities, Physical Fitness, Flight Crews, Functions, Heart, Heart Rate, High Altitude, Humans, Impedance, Life Support Systems, Males, Oxygen, Exposure(Physiology), Maneuvers, Navy, Pressure, Protection, Life Support Systems, Respiration, Silicon, Tolerance, Value, Volume, Warfare, Performance(Human), Stress(Physiology), Velocity.

**IDENTIFIERS:** Pe63316n, Kgz Acceleration, Tlss(Tactical Life Support Systems).

**FIELDS AND GROUPS:** 6/5, 23/5

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**AD NUMBER:** A280314

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Concept Evaluation: Inter-Individual Variation As The Basis For Optimizing Nutritional Support For Special Operations Forces (Sof) Soldier.

**PERSONAL AUTHORS:** Gabaree, Catherine L.; Thomas, Cecilia D.; Jones, Tanya E.; Hoyt, Reed W.; Askew, E. W.

**REPORT DATE:** May, 1994

**PAGINATION:** 72p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T94-15

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRDALC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Part i. Substrate utilization during exercise and the factors which may effect intra-individual and interindividual variation in substrate utilization are reviewed and discussed. Customization of nutritional support for the individual special operations forces (sof) soldier during mission deployment may be feasible and recommended for optimal physical performance in the field. Part ii. Physical characteristics which impact on physical performance (age, height, weight, surface area percent body fat, lean body mass) and maximal oxygen consumption (vo(2)max) of (sof) soldiers were compared to the same characteristics in non-sof u.s. army soldiers. Using these physical characteristics as criteria, sof soldiers are a statistically distinct sub-group within the u.s. army. Physical activity and nutrition of sof soldiers was assessed. Results indicate that sof soldier are highly active and that both occupational and recreational activities are very diverse. In the field, sof soldiers consume less than 3000 kcal.da(1). Additionally, carbohydrate consumption in the field approximates 300 grams.da(1) which is less than the 400 g.day(1) recommended by the committee or military nutrition. Special operations forces (sof), substrate utilization, physical characteristics, maximal oxygen consumption (vo(2)max), habitual physical activity, nutrient intake.

**DESCRIPTORS:**\*Army Personnel,\*Nutrition,\*Physical Fitness, Army, Bodies, Carbohydrates, Consumption, Deployment, Fats, Height, Impact, Lipids, Mass, Missions, Nutrients, Operation, Oxygen, Oxygen Consumption, Substrates, Surfaces, Utilization, Variations, Weight, Exercise(Physiology), Military Exercises, Performance(Human) .

**IDENTIFIERS:** Sof(Special Operations Forces).

**FIELDS AND GROUPS:** 6/8, 5/9

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**AD NUMBER:** A280201

**CORPORATE AUTHOR:** Military Academy West Point Ny

**UNCLASSIFIED TITLE:** Effectiveness Of The Physical Education Curriculum At The United States Military Academy In Preparing Its Women Graduates.

**PERSONAL AUTHORS:** Leboeuf, Maureen K.

**REPORT DATE:**, 1994

**PAGINATION:** 254p Media Cost: \$ 11.00 Price Code: Ac

**MONITOR ACRONYM:** XD

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Understanding the participant perspective of a program is important in order to determine if the curriculum is in fact achieving the desired outcomes. The purpose of the study was to examine the effectiveness of the physical education curriculum of the united states military academy in the preparation of its women graduates for their role as army officers and leaders. This study focused on the perceptions of women graduates concerning the physical education curriculum and related experiences. To provide a context for this study an extensive review of the literature centered around the changes which have been implemented at the united states military academy within the department of physical education since the arrival of women in 1976. Participants were 181 women graduates of the united states military academy from the classes of 1980, 1985, and 1990. Data were collected using a survey questionnaire which centered around the operational definition of effectiveness. In this study effectiveness was defined as an evaluation of the extent to which the individual participant derived satisfaction from the physical education program, acquired fitness knowledge and skills, adopted a pattern of regular participation in fitness activities, and ultimately, observed a beneficial impact on the unit to which the individual is assigned. Follow-up telephone interviews were conducted with 13 women graduates in an attempt to probe for additional information in areas identified during the data analysis. Content analysis was used to determine the categories which were most prevalent in the data. The categories which emerged for the classes include: increased self-confidence, hard work and discipline; excelling physically; credibility; bei

**DESCRIPTORS:**\*Physical Fitness,\*Women, Graduates, Perception, Questionnaires, United States Military Academy, Officer Personnel, Operational Effectiveness, Theses, Army Training, Leadership Training, Roles(Behavior), Attitudes(Psychology).

**IDENTIFIERS:** Physical Education, Apft(Army Physical Fitness Test).

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A279954

**CORPORATE AUTHOR:** Navy Personnel Research And Development Center San Diego Ca

**UNCLASSIFIED TITLE:** Fitness Reports Of Naval Warfare Officers: A Search For Gender Differences.

**PERSONAL AUTHORS:** Thomas, Patricia J.; Perry, Zannette A.; David, Kristin M.

**REPORT DATE:** May, 1994

**PAGINATION:** 30p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nprdc-Tr-94-10

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** PERS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this investigation was to determine whether gender differences are evident in the narrative section of the fitness reports of naval warfare officers. An analysis conducted in 1983 had concluded that women and men officers are not evaluated without regard to gender. The most recent regular fitness reports were obtained for matched samples of women and men surface warfare officers, naval aviators, and naval flight officers. Information was extracted from the narrative section of the reports and content analyzed. Significance tests were conducted of the frequency with which specific descriptors were used in the fitness reports of women and men. The findings indicated that significantly more comments appeared in women's fitness reports than in men's, contrary to the results of the 1983 analysis, due to raters describing personality traits of women more often than they did for men. Women warfare officers were not described with gender-typed words but were said to be dynamic, assertive, and energetic more frequently than were men. Leadership was the only area of performance in which women were rated significantly lower than men. Although, more women than men had the recommended-for-early-promotion box checked, more men were recommended for immediate promotion in the comments. Gender differences favoring women occurred more frequently in the fitness reports of surface warfare officers than in those of the aviation officers. No evidence was found of sexist language in the fitness reports of women warfare officers, but the gender differences in the nature of recommendations and ratings of leadership could negatively affect the careers of women.

**DESCRIPTORS:**\*Leadership Training,\*Officer Personnel,\*Discrimination, Careers, Males, Naval Warfare, Personality, Ratings, Test And Evaluation, Women, Performance Tests, Statistical Analysis, Physical Fitness, Rank Order Statistics, Military History, Personality Tests.

**IDENTIFIERS:** Gender Differences,\*Sex Discrimination

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A279775

**CORPORATE AUTHOR:** Naval Aerospace Medical Research Lab Pensacola Fl

**UNCLASSIFIED TITLE:** Command History, 1993.

**PERSONAL AUTHORS:** Gadolin, R. E.; Mayer, K. S.

**REPORT DATE:** Apr, 1994

**PAGINATION:** 145p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This publication is a compilation of significant events that occurred at the naval aerospace medical research laboratory during 1993

**DESCRIPTORS:**\*Medical Research,\*Aerospace Medicine,\*Military Medicine,\*Medical Laboratories, Dosimetry, Naval Research Laboratories, Naval Research, Laser Applications, Motion Sickness, Radiofrequency, Hearing, Magnetic Fields, Sensory Deprivation, Performance(Human), Physical Fitness, Acceleration Tolerance, Extremely Low Frequency, Retention(Psychology), Personality Tests, Exercise(Physiology), Pilots, Speech Therapy, Nystagmus, Vestibular Apparatus, Noise, Cold Tolerance, Biomedicine, Microwaves, Vision, Aerospace Environments, Behavior, Circadian Rhythms, Aging(Physiology), Hypothermia, Biofeedback, Women, Technology Transfer.

**IDENTIFIERS:** Naval Aerospace Medical Research Laboratories, Nonionizing Radiation, Spatial Disorientation, Fleet(Ships).

**FIELDS AND GROUPS:** 6/5, 6/12

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**AD NUMBER:** A279547

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Musculoskeletal And Medical Morbidity Associated With Rigorous Physical Training.

**PERSONAL AUTHORS:** Linenger, Jerry M.; Flinn, Scott; Thomas, Bruce; Johnson, Chrisanna W.

**REPORT DATE:**, 1993

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-91-35

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The distribution and rates of medical conditions and musculoskeletal injuries suffered during training by u.s. navy seal special forces trainees were described in a prospective, descriptive epidemiological study. We studied consecutive classes of candidates undergoing the physically-demanding 25-week navy special warfare indoctrination training during spring 1991 in coronado, ca. Healthy males, ages 19 to 31, contributed 482 trainee- months at risk. Combined medical conditions and musculoskeletal injuries occurred at a rate of 61.4 cases per 100 trainee-months at risk. Visits were nearly evenly split between medical conditions (31.7 cases/100 trainee-months) and musculoskeletal injuries (29.7 cases/100 trainee-months). Respiratory complaints accounted for almost half (14.7 cases/100 trainee-months) of the medical conditions, while overuse injuries (primarily iliotibial band syndrome, patellofemoral syndrome, and stress fracture) accounted for 90% of the musculoskeletal injuries. Physical fitness, injury, epidemiology, military, u.s. navy, seals, overuse injury, physical training, respiratory.

**DESCRIPTORS:**\*Physical Fitness,\*Exercise(Physiology),\*Musculoskeletal Diseases, Distribution, Epidemiology, Males, Navy, Rates, Risk, Signs And Symptoms, Special Forces, Trainees, Training, Warfare, Wounds And Injuries, Naval Personnel, Diagnosis(Medicine), Wounds And Injuries, Medical Services, Reprints.

**IDENTIFIERS:** Pe62233n, Wu6005.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN CLINICAL JOURNAL OF SPORTS MEDICINE, V3 N4 P229-234, 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 5/9

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**AD NUMBER:** A278344

**CORPORATE AUTHOR:** Naval Medical Research And Development Command Bethesda Md

**UNCLASSIFIED TITLE:** Development Of Performance-Based Physical Screening Criteria For The U.S. Navy Fleet Diving Program.

**PERSONAL AUTHORS:** Marcinik, E. J.; Hyde, D. E.; Taylor, W. F.

**REPORT DATE:** Mar, 1994

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nmri-94-02

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The current u.s. navy fleet diver physical screening test has been found to be a poor predictor of representative physically demanding job performance. A mismatch between diver physical capabilities and job requirements may increase the risk of injury and decrease productivity. To improve physical selection procedures, an experimental fitness battery (efb) was validated against representative physically demanding diving tasks. The efb contained measures of body composition, power, muscular strength. And swim endurance. Job tasks included: (1) tool-bag swim, (2) 5- min fin-kick, (3) ladder climb, (4) scuba-bottle carry, and (5) umbilical pull. Subjects were 146 male diver candidates (age 25.1 + or - 4.3 yr, x + or - sd, range 18-37 yr) undergoing training at the naval diving and salvage training center, panama city fl. Results indicate a significant relationship exists between efb scores and representative diving task performance. Although the efb offers an improvement in job performance prediction compared to current selection criteria, caution should be used in implementing this battery for fleet diver physical selection purposes. Most of the variance in diving task performance cannot be accounted for by efb scores. Greater emphasis should be placed on aligning physical training methods to meet job performance requirements. Occupational standards, job performance, physical fitness, muscular strength.

**DESCRIPTORS:**\*Divers,\*Physical Fitness,\*Test And Evaluation,\*Naval Personnel, Bags, Bodies, Bottles, Diving, Fins, Jobs, Males, Navy, Panama, Power, Predictions, Productivity, Requirements, Risk, Salvage, Selection, Standards, Tools, Training, Urban Areas, Wounds And Injuries, Performance(Human), Scoring.

**IDENTIFIERS:** Pe63713n, Wudn244515, Wu1428, Efb(Experimental Fitness Battery).

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A276081

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Evaluation Of The Navy's Obesity Treatment Program.

**PERSONAL AUTHORS:** Trent, Linda K.; Stevens, Linda T.

**REPORT DATE:** Dec 01, 1993

**PAGINATION:** 25p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-93-25

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study provided an evaluation of the effectiveness of the navy's three-tiered obesity treatment program: level I (command-directed remedial conditioning program), level II (weight- management counseling), and level III (inpatient obesity treatment). Height, weight, and body circumference measurements were obtained from 624 program participants at the beginning of the program, then at 6 weeks, 6 months, and 12 months after the start of the program. There was a significant reduction in percent body fat after 1 year in all three program tiers. Results demonstrated a sustained downward trend through the 6-month data point, then a plateau between 6 and 12 months. The number of participants meeting the navy's body fat criteria improved from 1% to 27%, and the number of participants classified as obese dropped from 63% to 43%. However, absolute losses (mean percent body fat) were small: -3.6% fat for men, -4.5% fat for women after 1 year. Approximately 4.6% of the sample were discharged from the navy for obesity. Level iii, which employs diverse treatment techniques, was the most effective program in helping participants to reduce body fat. Level i, which is primarily an exercise program, was the least effective. An aggressive and supportive aftercare program is recommended to enhance weight loss among program graduates. Obesity treatment, weight management, program evaluation, navy personnel.

**DESCRIPTORS:** \*Obesity, \*Physical Fitness, \*Naval Personnel, \*Body Weight, Bodies, Counseling, Fats, Graduates, Height, Lipids, Losses, Management, Mean, Measurement, Navy, Numbers, Personnel, Plateaus, Reduction, Weight, Women, Weight Reduction, Naval Research, Military Medicine, Health Surveys.

**FIELDS AND GROUPS:** 5/1, 6/4, 5/9

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**AD NUMBER:** A275984

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Thermal And Physiological Responses Of Basic Underwater Demolition/Seal (Bud/S) Students To A 5.5-Mile Open-Ocean Swim.

**PERSONAL AUTHORS:** Prusaczyk, W. K.; Goforth, H. W., Jr.; Sopchick, T.; Griffith, P.; Schneider, K.

**REPORT DATE:** Dec 29, 1993

**PAGINATION:** 18p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-93-27

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The thermal stress can have a substantial negative impact on the performance of naval special warfare (nsf) personnel during training and missions. This effect is especially evident during prolonged operations in cold water. Cold water is a particularly inhospitable environment. Heat conduction of water is 25 times that of air causing loss of body heat two to four times faster in water than in air at the same temperature. The rate of heat production by a swimmer and of body heat loss to the water are critical factors in core body

temperature homeostasis. In cool and cold waters, the metabolic heat produced by swimming can be inadequate to counteract the large thermal drain imposed by the water. Although heat production is increased during exercise, heat loss is also increased. Reducing body heat loss to the water becomes critical for the prevention of hypothermia when metabolic heat production is less than heat loss.

**DESCRIPTORS:** \*Naval Personnel, \*Cold Tolerance, \*Stress(Physiology), \*Divers, \*Thermal Stresses, Naval Warfare, Naval Training, Water, Low Temperature, Body Weight, Heat Loss, Metabolic Diseases, Exposure(Physiology), Physical Fitness, Wet Suits, Hypothermia, Environments, Performance Tests, Performance(Human), Volunteers, Protective Clothing, Cores, Temperature Control, Strains(Biology), Scenarios.

**IDENTIFIERS:** Pe62233n, Nsw(Naval Special Warfare)

**FIELDS AND GROUPS:** 13/10, 5/9, 6/10, 20/11

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**AD NUMBER:** A275564

**CORPORATE AUTHOR:** Naval Medical Research Inst Bethesda Md

**UNCLASSIFIED TITLE:** Validation Of The U.S. Navy Fleet Diver Physical Screening Test.

**PERSONAL AUTHORS:** Marcinik, E. J.; Hyde, D. E.; Taylor, W. F.

**REPORT DATE:** Nov, 1993

**PAGINATION:** 28p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nmri-93-79

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The development of job-related selection and training methods will improve safety and lead to substantial cost savings to the navy through enhanced screening and productivity. The present investigation determined the extent to which the current u.s. navy fleet diver physical screening test predicted performance of 5 representative physically demanding job tasks. Subjects were 146 male diver candidates (age 25.1 +/-4.3 yr, x +/- sd, range 18-37 yr) undergoing training at the naval diving salvage and training center, panama city, fl. Results indicate the current u.s. navy fleet diver physical screening test provides a poor estimate of representative job task performance for the population of diver candidates tested. A finding of particular operational significance was that a substantial number of diver candidates who passed current physical screening test standards were unable to complete (i.e, failed) the tool-bag swim (18.5%) and fin-kick (25.7%) tasks. Results suggest the current screening test has limited utility for physical selection purposes and underscore the need of developing a requirements-based selection battery to ensure that diver physical capabilities are aligned to the job. Physical fitness, diver selection, job performance, occupational requirements.

**DESCRIPTORS:** \*Divers, \*Physical Fitness, \*Military Requirements, \*Performance Tests, \*Naval Personnel, Bags, Costs, Diving, Estimates, Fins, Jobs, Males, Navy, Numbers, Panama, Population, Productivity, Requirements, Safety, Salvage, Savings, Selection, Standards, Test And Evaluation, Tools, Training, Urban Areas, Performance(Human), Personnel Selection, Job Analysis, Naval Research.

**IDENTIFIERS:** Pe63713n, Wu1428.

**FIELDS AND GROUPS:** 15/6.1, 6/4, 6/5

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**AD NUMBER:** A275348

**CORPORATE AUTHOR:** Armstrong Lab Brooks AFB Tx Crew Systems Directorate

**UNCLASSIFIED TITLE:** Comparative Centrifuge Evaluation Of The Air Force Advanced Technology Anti-G Suit (Atags) And The Navy Enhanced Anti-G Lower Ensemble (Eagle).

**PERSONAL AUTHORS:** Burns, John W.; Hill, Ronald C.

**REPORT DATE:** Dec 30, 1993

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** AL/Cf-Pc-1993-0052

**MONITOR ACRONYM:** XC

**MONITOR SERIES:** AL/CF\*

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The centrifuge evaluation of the atags and eagle was undertaken to determine which extended coverage anti-g suit would enter engineering and manufacturing development for joint service use. Eight male centrifuge subjects were used, wearing either an atags, with or without pressure socks, or an eagle. Pressure breathing during g (combat edge) was used with all three combinations. The combinations were randomized to eliminate any order effect. The arms of all subjects were wrapped from the wrist to the axilla with 3 in. Wide elastic bandage to reduce the possibility that subjects might stop the +gz exposure for arm pain rather than for fatigue or light loss. Gor, ror, and 5-9 sacm +gz profiles were used to compare the suits. Although not significantly different, the average number of 9g plateaus completed (endurance) for the atags with socks, the atags without socks and the eagle were 8.0, 7.8, and 6.5, respectively. Subject hr while wearing the atags with pressure socks was significantly ( $p=.03$ ) lower than hr while wearing the eagle during the 5g plateaus of the 5-9 +gz sacm. The perceived effort involved in the straining maneuver during the 5-9 sacm with the eagle was consistently, but not significantly, greater across the 9g plateaus compared to the atags with pressure socks. However, there was a significant ( $p=.032$ ) suit/time interaction between the atags with pressure socks and the eagle. There was no significant difference in subject hr or +gz tolerance between the three g-suit combinations during the gor or ror +gz exposures. +gz, +gz tolerance, anti-g suit evaluation, extended coverage, anti-g suit.

**DESCRIPTORS:** \*G Suits, \*Pressure Breathing, \*Flight Crews, \*Physical Fitness, Centrifuges, Edges, Engineering, Fatigue, Interactions, Light, Males, Maneuvers, Manufacturing, Numbers, Pain, Plateaus, Profiles, Respiration, Socks, Time, Tolerance, Warfare, Wrist, Acceleration, Exposure(Physiology), Life Support Systems.

**IDENTIFIERS:** Pe63231f, Wual28300108.

**FIELDS AND GROUPS:** 6/5, 23/5

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**AD NUMBER:** A275176

**CORPORATE AUTHOR:** Defence And Civil Inst Of Environmental Medicine Downsview (Ontario)

**UNCLASSIFIED TITLE:** Effects Of Endurance Training On Heat- Exercise Tolerance In Men Wearing Nbc Protective Clothing.

**PERSONAL AUTHORS:** Aoyagi, Yukitoshi; Mclellan, Tom M.; Shephard, Roy J.

**REPORT DATE:** Aug, 1993



**PAGINATION:** 37p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Dciem-93-46

**MONITOR ACRONYM:** X5

**MONITOR SERIES:** XD

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Protective clothing imposes significant physiological and psychological stresses on the human body and may limit work tolerance, especially in hot environments. The additional strains imposed by protective clothing arise mainly because it is difficult for sweat to evaporate through relatively impermeable fabrics. Endurance training is a commonly adopted tactic to improve tolerance times when individuals must work in the heat. Potential benefits include improved physical fitness, increased sweating, and expanded plasma volume. However, it is unclear whether such responses develop and/or are helpful when wearing protective garments with limited vapor permeability. The purpose of this study was therefore to examine the influence. The purpose of this study was therefore to examine the influence of endurance training on exercise tolerance in a hot environment when subjects were wearing either normal light combat clothing or clothing offering protection against nuclear, biological and/or chemical (nbc) agents.

**DESCRIPTORS:**\*Protective Clothing,\*Stress(Psychology), Human Body, Strains(Biology), Males, Military Personnel, Military Operations, Physical Fitness, Military Training, Heat Stress(Physiology).

**IDENTIFIERS:**\*Nbc(Nuclear Biological And Chemical).

**FIELDS AND GROUPS:** 23/4, 15/6, 6/10

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**AD NUMBER:** A274547

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Army Physical Fitness Test (Apft): Normative Data On 6022 Soldiers.

**PERSONAL AUTHORS:** Knapik, Joseph; Banderet, Louis; Bahrke, Michael; O'connor, John; Jones, Bruce

**REPORT DATE:**, 1993

**PAGINATION:** 60p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T97-7

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to develop normative values for army physical fitness test (apft) events and to demonstrate the use of these normative values. Data, collected during the 1988 active army physical fitness survey by the u.s. army physical fitness school (usapfs), were analyzed for this purpose. Subjects were 5346 male soldiers and 676 female soldiers from 14 army installations in the united states. The apft was administered by master fitness trainers under the supervision of personnel from the usapfs. Soldiers completed as many push-ups as possible in two minutes, as many sit-ups as possible in two minutes and performed a two-mile run for time. Data were separated into the age and gender categories on which the current apft standards are based (17-21, 22-26, 27-31, 32-36, 37-41, 42-46, 47-51, >52 years). Percentile distributions were calculated for each event. Percentiles for raw scores and apft points are presented in tables 4 to 18 and

tables 19 to 33, respectively. Illustrative examples show how these norms can be used.

Physical performance, military personnel, two-mile runs, sit-ups, push-ups, physical fitness.

**DESCRIPTORS:**\*Army Personnel,\*Physical Fitness, Distribution, Females, Males, Surveys, Test And Evaluation, Data Acquisition, Performance(Human), Statistical Analysis, Military Standards, Military Training.

**IDENTIFIERS:** Apft(Army Physical Fitness Test)

**FIELDS AND GROUPS:** 6/4

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**AD NUMBER:** A273935

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks

**UNCLASSIFIED TITLE:** Female Combat Helicopter Pilot Selection Criteria.

**PERSONAL AUTHORS:** Mullins, Wendy R.

**REPORT DATE:** Jun 04, 1993

**PAGINATION:** 112p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study investigates selection criteria for selecting female aviators for training in combat helicopters (ah-64, ah-1, oh-58d, and rah-66). Selection for such training would occur as either a part of the multi-track program of instruction used in the current initial entry rotary wing flight training course, or as transition training for already qualified aviators. Analysis included a review of: current army regulations governing prerequisites for combat helicopter training and combat helicopter maintenance test pilot training; initial entry rotary wing selection criteria for combat helicopter tracks (ah-1 and oh-58); aviation branch personnel manager interviews; combat helicopter manprint/anthropometric restrictions; standards of medical fitness; anthropometric standards; and previous reports on female performance in initial entry rotary wing training. Conclusion supports selecting females for combat helicopter training using the same selection criteria currently used for choosing males for such training. Study recommends additional research in aircraft accommodation measurements; social-psychological aspects; and physical body strength requirements. Helicopter pilot training, selecting women aviators, military helicopter pilot selection.

**DESCRIPTORS:**\*Pilots,\*Warfare,\*Women,\*Personnel Selection, Army, Females, Flight Training, Helicopters, Maintenance, Measurement, Regulations, Standards, Test And Evaluation, Transitions, Anthropometry, Physical Fitness, Military Requirements.

**FIELDS AND GROUPS:** 5/9, 1/2

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**AD NUMBER:** A273856

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Associations Between Mood And Specific Health Composites During U.S. Navy Persian Gulf Operations.

**PERSONAL AUTHORS:** Burr, Ralph G.; Woodruff, Susan I.; Banta, Guy R.

**REPORT DATE:**., 1993

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-90-42

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Previously conducted field studies using shipboard u.s. navy personnel during at-sea operations in the persian gulf have shown that crew members experience mood changes and degradations in general physical health. The objectives of this study were to: a) extend previous research by using specific health complaints rather than a general measure of health; and b) examine the relationship between mood and specific health complaints among personnel deployed in the persian gulf. Questionnaire data were collected from 104 volunteers serving aboard two u.s. navy ships (agf and an mso) deployed in the persian gulf. Mood was assessed using the profile of mood states tension/anxiety and fatigue scales. Health symptoms were measured using the environmental symptoms questionnaire (esq) . Results of multiple regression analyses showed that each of the 11 esq health composites was significantly associated with one or both mood variables; the two mood states differentially predicted 9 of 11 distinct health composites. This study points to the usefulness of employing multiple health composites rather than global measures when assessing mood-health associations. Mood, profile of mood states, health symptoms, environmental symptoms questionnaire, persian gulf

**DESCRIPTORS:**\*Health,\*Persian

Gulf,\*Attitudes(Psychology),\*Stress(Physiology),\*Stress(Psychology), Anxiety, Crews, Degradation, Fatigue, Global, Gulfs, Navy, Oceans, Operation, Organizations, Personnel, Profiles, Questionnaires, Shipboard, Ships, Signs And Symptoms, Tension, Variables, Volunteers, Health Surveys, Management Training, Military Personnel, Naval Personnel, Naval Operations, Physical Fitness, Sleep, Reprints.

**IDENTIFIERS:** Pe63706n.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN JNL. OF PSYCHOMATIC RESEARCH, V37 N3 P291-297, 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/8, 6/10

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**AD NUMBER:** A273313

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Intrinsic Risk Factors For Exercise-Related Injuries Among Male And Female Army Trainees,

**PERSONAL AUTHORS:** Jones, Bruce H.; Bovee, Matthew W.; Harris, John M., Iii; Cowan, David N.

**REPORT DATE:**, 1993

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Physical training-related injuries are common among army recruits and other vigorously active populations, but little is known about their causation. To identify intrinsic risk factors, we prospectively measured 391 army trainees. For 8 weeks of basic training, 124 men and 186 women (79.3%) were studied. They answered questionnaires on past activities and sports participation, and were measured for height, weight, and body fat

percentage; 71% of the subjects took an initial army physical training test. Women had a significantly higher incidence of time-loss injuries than men, 44.6% compared with 29.0%. During training, more time-loss injuries occurred among the 50% of the men who were slower on the mile run, 29.0% versus 0.0%. Slower women were likewise at greater risk than faster ones, 38.2% versus 18.5%. Men with histories of inactivity and with higher body mass index were at greater injury risk than other men, as were the shortest women.

**DESCRIPTORS:**\*Risk,\*Military Training,\*Exercise(Physiology), Army, Bodies, Fats, Height, Indexes, Lipids, Mass, Population, Questionnaires, Recreation, Recruits, Test And Evaluation, Time, Trainees, Training, Weight, Women, Wounds And Injuries, Reprints, Males, Musculoskeletal Diseases, Physical Fitness.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN AMERICAN JNL. OF SPORTS MEDICINE, V21 N5 P705-710 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9, 6/10, 12/4

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**AD NUMBER:** A273312

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Validity Of Self-Assessed Physical Fitness,

**PERSONAL AUTHORS:** Jones, Bruce H.; Knapik, Joseph J.; Reynolds, Katy L.; Staab, Jeffery S.

**REPORT DATE:**, 1992

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study compared self-ratings of components of physical fitness with objective measures of physical fitness. We made comparisons in two groups of male infantry soldiers (n=96 and n=276) and one group of older male military officers (n=241). To obtain self-ratings of physical fitness, we asked subjects, 'compared to other of your age and sex, how would you rate your (a) endurance, (b) sprint speed, (c) strength, (d) flexibility?' subjects responded to each of the four questions on a five point scale. Self-ratings of endurance were systematically related to three measures of aerobic capacity, including vo2max, peak vo2, and two mile run time (r=0.29 to 0.53). Self-ratings of sprint speed showed only weak relationships to measures of anaerobic capacity assessed by the wingate test, pushups, and sit-ups (r=0.10 to 0.17). Strength ratings were systematically related to measures of maximal strength (r=0.28 to 0.53). Upper body strength measures were more closely associated with the self ratings of strength than were measures of lower body strength. Responses to the flexibility question were systematically related to measures of hip/low back flexibility (r=0.30 and 0.48) but not to other measures of flexibility. Apparently, physically active subjects can approximately classify their aerobic capacity, muscle strength, and some types of flexibility.

**DESCRIPTORS:**\*Physical Fitness,\*Military Personnel, Endurance(Physiology), Strength(Physiology), Reprints.

**IDENTIFIERS:** Sprint Sheet, Flexible(Physiology).

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN AMERICAN JNL. OF PREVENTIVE MEDICINE, V8 N6 P367-372 1992. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A268691

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Cold Weather Field Evaluation Of The 18-Man Arctic Tray Pack Ration Module, The Meal, Ready-To-Eat, And The Long Life Ration Packet,

**PERSONAL AUTHORS:** King, Nancy; Mutter, Susan H.; Robert, Donald E.

**REPORT DATE:**, 1993

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The army field feeding system was evaluated for its ability to provide adequate nutrition and hydration during a 10-day cold weather field exercise. Soldiers consumed the 18-man arctic tray pack ration module with either a wet-pack (meal, ready-to-eat) or a dehydrated (long life ration packet) individual ration. Both feeding regimens were acceptable, meeting protein and micronutrients requirements. However, the soldiers consumed only 70% of their energy requirement, thus losing an average of 0.9% of body weight. This weight loss, although not excessive, underscores the importance of maintaining an adequate food intake during extended cold weather military field operations.

**DESCRIPTORS:**\*Cold Weather,\*Military Rations,\*Food Consumption, Army, Army Personnel, Body Weight, Energy, Feeding, Food, Hydration, Long Life, Meals, Nutrition, Operation, Packets, Proteins, Rations, Requirements, Trays, Weather, Weight, Military Operations, Exercise(Physiology), Acceptability, Physical Fitness, Military Medicine, Marine Corps Training, Field Conditions, Reprints.

**IDENTIFIERS:** Llrp(Long Life Ration Packet)

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MILITARY MEDICINE, V158 P458-465 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/8

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**AD NUMBER:** A268689

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Physical Fitness, Age, And Injury Incidence In Infantry Soldiers,

**PERSONAL AUTHORS:** Knapik, Joseph; Ang, Philip; Reynolds, Katy; Jones, Bruce

**REPORT DATE:** Jun, 1993

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Injuries are a common occurrence in young, active civilian and military populations. This study examined injury incidence and the association of musculoskeletal injuries with age and physical fitness in soldiers. Subjects were a cohort of 298 male

soldiers assigned to an infantry battalion in alaska. The soldiers' ages were obtained from the battalion records and their physical fitness was assessed from 2-mile run times, sit-ups, and pushups. Injuries were documented from a retrospective review of the soldiers' medical records for a 6-month period (october to march) before the fitness testing. Fifty-one percent of the soldiers suffered one or more injuries. The most common injury diagnosis was musculoskeletal pain, followed by strains, sprains, and cold-related injuries. Soldiers experienced a total of 212 separate injuries, which resulted in 1764 days of limited duty. The crude annualized injury rate was 142 injuries per 100 soldiers (one soldier could experience more than one type of injury). The proportion of soldiers injured decreased as age increased. Slower 2- mile run times and fewer sit-ups were associated with a higher incidence of musculoskeletal injuries. This study documents the injury incidence in infantry soldiers and identifies younger age and low physical fitness as potential risk factors for these injuries.

**DESCRIPTORS:** \*Physical Fitness, \*Wounds And Injuries, \*Exercise(Physiology), \*Musculoskeletal Diseases, Alaska, Army Personnel, Documents, Infantry, Males, Organizations, Population, Rates, Records, Risk, Sites, Physical Therapy, Stress(Physiology), Military Training, Military Operations, Military Medicine, Health, Musculoskeletal System.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN JNL. OF OCCUPATIONAL MEDICINE, V35 N6 P598-603 JUN 93. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 6/4

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**AD NUMBER:** A267439

**CORPORATE AUTHOR:** Army Health Care Studies And Clinical Investigation Activity Fort Sam Houston Tx

**UNCLASSIFIED TITLE:** Proceedings Of The Users' Stress Workshop (8th) Held In San Antonio, Texas On Sep 91.

**PERSONAL AUTHORS:** Mangelsdorff, A. D.

**REPORT DATE:** Sep, 1991

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** HCSCIA

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The proceedings document the presentations at a workshop conducted in september 1991 on the training programs designed for managing psychological trauma and stress.... Stress, stress disorders, post-traumatic stress psychological training

**DESCRIPTORS:** \*Trauma, \*Stress(Psychology), Training, Workshops, Symposia, Warfare, Military Personnel, Instructors, Physical Fitness, Desensitizing, Eye, Decision Making, Family Members, Medical Services.

**IDENTIFIERS:** Self-Reliance, Coping Skills, Spiritual Fitness, Eye Movement Desensitization, Persian Gulf War, Desert Shield, Desert Storm, Post Traumatic

**FIELDS AND GROUPS:** 5/8, 15/1, 6/5

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**AD NUMBER:** A266297

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma  
**UNCLASSIFIED TITLE:** Physical Fitness, Physical Training And Occupational Performance  
Of Men And Women In The U.S. Army: A Review Of Literature.

**PERSONAL AUTHORS:** Sharp, Marilyn A.

**REPORT DATE:** Jun, 1993

**PAGINATION:** 24p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-Tn-93-7

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The majority of jobs available to personnel entering the u.s. army are physically demanding. Soldiers must maintain high levels of physical fitness to optimally perform their duties. This report summarizes the research that has been conducted to compare the physical fitness, physical training and occupational performance of women and men in the u.s. army

**DESCRIPTORS:**\*Physical Fitness,\*Women,\*Performance(Human), Army Personnel, Army Training.

**IDENTIFIERS:** Muscular Strength, Muscular Endurance,\*Men

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A265908

**CORPORATE AUTHOR:** Naval Medical Research Inst Bethesda Md

**UNCLASSIFIED TITLE:** An Analysis Of Physically Demanding Tasks Performed By U.S.  
Navy Fleet Divers.

**PERSONAL AUTHORS:** Marcinik, E. J.; Schibly, B. A.; Hyde, D.; Doubt, T. J.

**REPORT DATE:** Apr, 1993

**PAGINATION:** 44p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nmri-93-15

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** In an effort to better align the physical capabilities of u.s. navy fleet divers with occupational physical requirements, the objectives of this research investigation were to: (1) develop a general taxonomy of physically demanding tasks performed by fleet divers; (2) identify a subset of job tasks representative of diver's work; (3) develop a job performance test battery based on representative fleet diver tasks. Seventy-two fleet divers reported a total of 110 physically demanding tasks using a job analysis survey. The relative distribution of these tasks according to basic body effort is presented below: single lift without carry 19.1%, lift repetitively without carry 20.0%, lift and carry 21.8%, carry while running/swimming 16.4%, pushing/pulling 20.0%, other 2.7%. Eighteen representative job tasks were identified by divers during group interview sessions

**DESCRIPTORS:**\*Military Requirements,\*Physical Fitness,\*Divers, Performance(Human), Naval Personnel, Personnel Selection, Taxonomy, Job Analysis, Performance Tests, Photographs, Surveys, Interviewing, Naval Research.

**IDENTIFIERS:** Pe63713n, Wu1003, Occupational Requirements, Task Analysis,\*Taxonomy  
Of Tasks

**FIELDS AND GROUPS:** 15/6.1, 6/4

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**AD NUMBER:** A265430

**CORPORATE AUTHOR:** Army Health Care Studies And Clinical Investigation Activity Fort Sam Houston Tx

**UNCLASSIFIED TITLE:** Proceedings Of Users' Stress Workshop (8th) Held San Antonio, Texas On September 24 - 27, 1992.

**PERSONAL AUTHORS:** Mangelsdorff, A. D.

**REPORT DATE:** Sep, 1991

**PAGINATION:** 238p Media Cost: \$ 11.00 Price Code: Ac

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** HCSCIA

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The proceedings document the presentations at a workshop conducted in september 1991 on the training programs designed for managing psychological trauma and stress.

**DESCRIPTORS:**\*Stress(Physiology),\*Mental Disorders,\*Trauma,\*Military Medicine, Psychophysiology, Texas, Training, Workshops, Psychiatry, Symposia, Chaplains, Military Personnel, Adjustment(Psychology), Warfare, Physical Fitness, Decision Making, Psychotherapy, Crisis Management, Disasters.

**IDENTIFIERS:**\*Post Traumatic Stress Disorder, Stress Disorders, Battle Fatigue, Desert Storm Operation.

**FIELDS AND GROUPS:** 5/8, 6/5

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**AD NUMBER:** A265235

**CORPORATE AUTHOR:** Naval Postgraduate School Monterey Ca

**UNCLASSIFIED TITLE:** Predicting Success At Marine Security Guard (Msg) School Utilizing The Headquarters Master File (Hmf).

**PERSONAL AUTHORS:** Snyder, Michael J.

**REPORT DATE:** Mar, 1993

**PAGINATION:** 122p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NPS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The objective of this study is to utilize background characteristics to determine predictors of success from marine security school. The data used consist of files on fifteen msg classes of sergeants (e5s), corporals (e4s), and lance corporals (e3s) who reported to msg battalion for school. These classes cover the period from december 1989 to september 1991. The data file included close to 20 background characteristics that were evaluated in this study. The logistic procedure was selected to analyze this data set since it gives a more precise picture of results than simple regression when using multiple independent variables. Six variables were found to be statistically significant below the ten percent level in predicting success of marines at msg school. These are the physical fitness score, rifle score, gt score, current age, current grade, race, and time in grade. Using the logit model. Example cases are presented to show the user how each marine's individual characteristics



affect the probability of success or failure from msg school.... Msg school, msg school attrition, attrition, predicting success

**DESCRIPTORS:**\*Attrition,\*Schools,\*Marine Corps Training,\*Marine Corps Personnel,\*Personnel Selection,\*Predictions,\*Security Personnel, Background, Failure, Logistics, Models, Physical Fitness, Probability, Rifles, Time, Variables, Race(Anthropology), Computer Programs, Statistical Tests, Enlisted Personnel.

**IDENTIFIERS:** Msg (Marine Security Guard) School, Hmf (Headquarters Master File), Successs, Logistic Regression, Rifle Score, General Technical Score, Military Grade, Length Of Service Military Occupational Specialty

**FIELDS AND GROUPS:** 15/1, 5/6, 5/9

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**AD NUMBER:** A264313

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Guidelines For Designing And Conducting Research Studies In Physical Fitness Training,

**PERSONAL AUTHORS:** Van Hoof, R.; Hodgdon, J.; Vogel, J.

**REPORT DATE:**, 1992

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M25-93

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Theoretical and practical guidelines for designing and conducting physical fitness training studies are given, based on the experience of the investigators of nato-research study group 17: 'biomedical aspects of physical training'. The guidelines are illustrated by examples taken from previous training studies. Simple statistical methods are also described of calculate various parameters of injury incidence rates and risks, confidence limits about incidence rates and to compare two incidence rates in training risks studies

**DESCRIPTORS:**\*Military Training,\*Physical Fitness,\*Training Management, Exercise(Physiology), Research Management, Biomedicine, Statistical Analysis, Risk, Nato, Reprints.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN ANN MED MILIT BELG, V6 N4 P183-190, 1992. AVAILABLE TO DTIC USERS ONLY. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A263399

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Epidemiology Of Injuries Associated With Physical Training Among Young Men In The Army,

**PERSONAL AUTHORS:** Jones, Bruce H.; Cowan, David N.; Tomlinson, J. P. ; Robinson, John R.; Polly, David W.

**REPORT DATE:**, 1993

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M78-91

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Jones, b. H., D. N. Cowan, j. P. Tomlinson, j. R. Robin- son, d. W. Polly, and p. N. Frykman. Epidemiology of injuries associated with physical training among young men in the army. Med. Sci. Sports exerc., Vol. 25, no. 2, pp. 197-203, 1993. It is widely acknowledged that musculoskeletal injuries occur as a result of vigorous physical activity and exercise, but little quantitative documentation exists on the incidence of or risk factors for these injuries. This study was conducted to assess the incidence, types, and risk factors for training-related injuries among young men undergoing army infantry basic training. Prior to training we evaluated 303 men (median age 19 yr), utilizing questionnaires and measurements of physical fitness. Subjects were followed over 12 wk of training. Physical training was documented on a daily basis, and injuries were ascertained by review of medical records for every trainee. We performed univariate and multivariate analyses of the data. Cumulative incidence of subjects with one or more lower extremity training- related injury was 37% (80% of all injuries). The most common injuries were muscle strains, sprains, and overuse knee conditions. A number of risk factors were identified, including: older age, smoking, previous injury (sprained ankles), low levels of previous occupational and physical activity, low frequency of running before entry into the army, flexibility (both high and low), low physical fitness on entry, and unit training (high running mileage).

**DESCRIPTORS:**\*Wounds And Injuries,\*Exercise(Physiology),\*Musculoskeletal Diseases,\*Physical Therapy,\*Stress(Physiology), Epidemiology, Infantry, Joints(Anatomy), Legs, Low Frequency, Measurement, Multivariate Analysis, Muscles, Physical Fitness, Questionnaires, Recreation, Reprints, Trainees, Army Training, Army Personnel, Military Medicine, Musculoskeletal System, Health.

**IDENTIFIERS:**\*Musculoskeletal Injuries, Lower Extremity Injuries, Risk Factors, Exercise, Physical Activity, Incidence, Multivariate Analysis.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, V25 N2 P197-203 1993. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5, 6/4

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**AD NUMBER:** A261459

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Obesity And Its Relation To Physical Fitness In The U.S. Military,

**PERSONAL AUTHORS:** Vogel, James A.

**REPORT DATE:**, 1992

**PAGINATION:** 17p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Obesity and physical fitness are commonly thought to be antithetical. One only has to consider certain categories of elite athletes-such as olympic weight lifters and football defensive linemen-to recognize that the relationship may be more complex. While not typically concerned with elite athletic performance in the military services, we are concerned with a wide variety of occupational demands that do vary in their relationship to

body fatness and other body composition components. The intent of this article is to present the relationships between the body composition components, particularly fatness, and the various aspects of physical fitness in the military. See table 1 for summary of definitions.

**DESCRIPTORS:**\*Physical Fitness,\*Obesity,\*Performance(Human), Army Personnel, Body Weight, Recruits, Active Duty, Military Training, Fat Cells, Reprints.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN ARMED FORCES AND SOCIETY, V18 N4 P497-513 SUMMER 1992. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A261425

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Characteristics Of Physical Training Activities Of West Coast U.S. Navy Sea-Air-Land Personnel (Seals).

**PERSONAL AUTHORS:** Prusaczyk, W. K.; Goforth, H. W.; Nelson, M. L.

**REPORT DATE:** Nov, 1992

**PAGINATION:** 26p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-90-35

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A physical training activity questionnaire was administered to 102 west coast naval special warfare personnel (seals). Responses provided information on the types, frequencies, and intensities of aerobic and strength training activities and locations. The responses were used to characterize training according to the american college of sports medicine (acsm) guidelines for development and maintenance of aerobic and strength fitness. Overall, seals reported engaging in aerobic activities in frequencies, intensities, and durations sufficient to maintain aerobic fitness. Strength conditioning, which tended to concentrate on the upper body, also occurred in sufficient frequency and quantity for maintenance of current fitness levels. However, the overall volume of training was somewhat less than for most elite or competitive athletes. The quality of physical training programs varied widely among the advanced seal training courses. Through education in the basic principles of athletic training, seals could implement more effective training regimens to develop and maintain aerobic and strength fitness. Ultimately, seals could achieve higher levels of readiness for demanding missions.

**DESCRIPTORS:**\*Military Personnel,\*Physical Fitness,\*Training,\*Warfare, Bodies, Education, Frequency, Intensity, Maintenance, Medical Research, Military Training, Missions, Quality, Quantity, Questionnaires, Recreation, Response, Universities, Seal Teams, Volume.

**IDENTIFIERS:** Pe62233n, Nsw(United States Navy Special Warfare).

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A259366

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** A Longitudinal Assessment Of The Impact Of Health/Fitness Status And Health Behavior On Perceived Life Quality.

**REPORT DATE:**, 1992

**PAGINATION:** 14p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-91-3

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study extended cross-sectional research associating quality of life with health and fitness factors. Longitudinal analyses were performed on data collected from 519 u.s. navy personnel to assess changes in quality of life with changes in health/fitness status and health behavior dimensions at 1-year and 2-year intervals. Multiple regression results showed that such changes were positively associated with changes in health/ fitness status and behaviors related to accident control and wellness maintenance, with these predictors accounting for 8% of the variance in change in quality of life at the 1-year interval. At the 2-year interval, such change was associated with health/fitness status and accident control behaviors, accounting for 11% of the variance. Health behavior change made a unique contribution to change in quality of life after controlling for changes in health/ fitness status at both intervals. Findings affirm modest yet consistent associations between changes in fitness and health variables and quality of life and suggest that improvements in health behavior influence quality of life independently of one's health/fitness status.... Health behavior, health status, quality of life. Navy men and women, physical fitness

**DESCRIPTORS:**\*Health,\*Physical Fitness,\*Perception(Psychology), Accidents, Behavior, Control, Naval Personnel, Reprints.

**IDENTIFIERS:** Pe63706n, Wu6106, Quality Of Life.

**LIMITATIONS (ALPHA):** PUB. IN PERCEPTUAL AND MOTOR SKILLS, V75 P3- 14, 1992.

**FIELDS AND GROUPS:** 5/8, 6/5

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**AD NUMBER:** A258364

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Muscle Glycogen, Fiber Type, Aerobic Fitness, And Anaerobic Capacity Of West Coast U.S. Navy Sea-Air- Land Personnel (Seals).

**PERSONAL AUTHORS:** Jacobs, Ira; Prusaczyk, W. K.; Goforth, Harold W., Jr

**REPORT DATE:** Jul, 1992

**PAGINATION:** 31p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-92-10

**MONITOR ACRONYM:** XB

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Thirty-eight navy seals performed aerobic fitness and maximal anaerobic capacity tests on a cycle ergometer. Lactic acid concentration was measured in blood samples taken during the aerobic fitness test. After recording prior dietary intake and physical activity, thirty-six subjects had biopsies taken from the vastus lateralis muscle. Biopsy results showed that seals averaged 55% fast twitch muscle fiber type. The muscle samples had a mean glycogen concentration of 404 (+ or - 124) mmol(dot)kg-1. Biopsy results show that

seals have an unremarkable fiber type composition and a muscle glycogen concentration that may put them at risk of insidious glycogen depletion over successive deployment days. Muscle glycogen concentration was significantly correlated with 2- day dietary carbohydrate (cho) intake normalized for body weight. Blood lactate concentration during submaximal exercise suggests that seals' aerobic fitness was somewhat low; anaerobic capacity tests show that seals would benefit from: (a) increasing cho intake to enhance premission muscle glycogen; and (b) engaging in combined aerobic/anaerobic training using established principles of mode specificity, frequency, intensity, and duration of exercise. Muscle glycogen, seals, diet, fiber type, fitness.

**DESCRIPTORS:**\*Seal Teams,\*Physical Fitness, Biopsy, Blood, Body Weight, Carbohydrates, Depletion, Diet, Ergometers, Glycogen, Lactates, Lactic Acid, Muscle Fibers, Risk, Weight, Naval Training, Aerobic Processes, Anaerobic Processes, Naval Personnel, Exercise(Physiology).

**IDENTIFIERS:** Pe62233n, Wu6005, Sea Air Land Personnel.

**FIELDS AND GROUPS:** 6/4

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**AD NUMBER:** A258298

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks  
School Of Advanced Mil Itary Studies

**UNCLASSIFIED TITLE:** An Exploration Of Cohesion In The Land Of Combat Service  
Support,

**PERSONAL AUTHORS:** Todd, Robert C.

**REPORT DATE:** Dec 18, 1991

**PAGINATION:** 55p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC/SAMS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This monograph explores cohesion as it applies to combat service support (css) soldiers. The exploration begins with the construction of a base camp constructed of materials from the study of infantry cohesion. While building the base camp the paper defines cohesion and explores its component parts of horizontal, vertical, organizational, and societal bonding. It covers how to build cohesion to include: shared experiences, group after action reviews (aar), vigorous training, family factors in building and maintaining cohesion, physical fitness, and technical and tactical proficiency. The lego model of cohesion, a method for visualizing the cohesion process, is the final item presented at the base camp. After completing the base camp, the reader departs for the actual exploration of the land of css. The exploration covers who the inhabitants are, where they live, and examines their national product of support. The paper introduces an economic system that explains the method of emotionally paying css soldiers in credits that come from the success of combat units.

**DESCRIPTORS:**\*Army Personnel,\*Cohesion, Infantry, Physical Fitness, Training, Warfare, Military Doctrine.

**IDENTIFIERS:** Csx(Combat Services Support), Infantry Cohesion.

**FIELDS AND GROUPS:** 15/6

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**AD NUMBER:** A258064

**CORPORATE AUTHOR:** Texas Coll Of Osteopathic Medicine Fort Worth Dept Of  
Pharmacology

**UNCLASSIFIED TITLE:** Aerobic Fitness: Response To Volume Regulating Hormones To  
Simulated Microgravity.

**PERSONAL AUTHORS:** Shi, Xiangrong; Squires, William G.; Williamson, Jon W.; Crandall,  
Craig G.; Chen, Jia-Jen

**REPORT DATE:**, 1992

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** F33615-87-D-0609

**MONITOR ACRONYM:** AL, XC

**MONITOR SERIES:** JA-1991-0055, AL/BROOKS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** To examine the effect of aerobic fitness on the response of volume regulating hormones to simulated microgravity, six untrained (ut) and six endurance trained (et) healthy young males were studied in -6 deg. Head-down rest (hdr) for four hours. Plasma concentrations of atrial natriuretic peptide (anp), arginine vasopressin (avp), plasma renin activity (pra), aldosterone (pa) and norepinephrine (ne), were measured prior to hdr in both groups. The changes in anp and ne concentrations were not significantly different between the groups nor across time. However, in the et subjects the changes in pra and ne were correlated with the changes in anp ( $r = -0.49$ ,  $p < 0.01$ , and  $r = -0.86$ ,  $p < 0.001$ , respectively); in the ut subjects the changes in avp, pra and pa were correlated with the changes in ne ( $r = 0.34$ ,  $p < 0.03$  and  $r = 0.59$ , and  $r = 0.53$ ,  $p < 0.01$ , respectively). At the end of 4-hour hdr the decrease in pv was greater in et subjects ( $p < 0.027$ ) than in the ut subjects. We conclude that endurance exercise training results in a more hormonally dominant (anp linked) regulation of blood volume. Conversely, the ut individual appears to have a more neurally (sympathetic nervous system mediated) regulation of blood volume.

**DESCRIPTORS:** \*Hormones, \*Regulations, \*Physical Fitness, \*Aerobic Processes, Aldosterone, Availability, Blood, Blood Volume, Head(Anatomy), Males, Medicine, Norepinephrine, Peptides, Pituitary Hormones, Recreation, Renin, Reprints, Reaction(Psychology), Rest, Time, Training, Blood Plasma, Exercise Heads, Exercise(Physiology), Cardiovascular System, In Vitro Analysis, In Vivo Analysis.

**IDENTIFIERS:** Plasma Volume, Atrial Natriuretic Peptide, Vasopressin, Plasma Renin Activity, Aldosterone, Norepinephrine, Head-Down Rest, Exercise Training, Microgravity, Avp(Arginine Vasopressin), Et(Endurance Trained), Plasma Volume, Plasma Renin Activity, Atrial Extract.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, V24 N9 P991-998 1992. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9, 6/5, 6/10

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**AD NUMBER:** A257479

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Associations Among Body Composition, Physical Fitness, And  
Injury In Men And Women Army Trainees,

**PERSONAL AUTHORS:** Jones, Bruce H.; Bovee, Matthew W.; Knapik, Joseph J.

**REPORT DATE:**, 1992

**PAGINATION:** 34p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-P12-91

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Policies regulating the body composition of men and women in the military service are a matter of ongoing interest to the u.s. army. Body composition is considered to be a component of a soldier's physical fitness, and in the army's view, obesity is associated with being unfit and 'unsoldierly'. This association is important because physical fitness is an essential component of military readiness for combat. To be prepared for its combat mission, the army attempts to select individuals with the fitness and stamina to endure the rigors of army training and combat. Simply selecting fit men and women is not adequate, however, because physical training is necessary to both develop and maintain the fitness of soldiers. For physical training to be effective, however, it must overload cardiovascular and musculoskeletal systems. This overloading entails a risk of musculoskeletal injury. Thus an understanding of the interactions among body composition, physical fitness, training, and injuries is an essential foundation for policies governing both body composition and physical fitness.

**DESCRIPTORS:**\*Physical Fitness,\*Combat Readiness, Army Personnel, Endurance(Physiology), Reprints.

**IDENTIFIERS:**\*Body Composition, Injury, Musculoskeletal Injury. .

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN BODY COMPOSITION AND PHYSICAL PERFORMANCE, P141-173 1992. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/4, 15/6, 5/9

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**AD NUMBER:** A255783

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Physiological Responses To Prolonged Treadmill Walking With External Loads,

**PERSONAL AUTHORS:** Patton, J. F.; Kaszuba, J.; Mello, R. P.; Reynolds, K. L.

**REPORT DATE:**, 1991

**PAGINATION:** 5p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The energy cost of walking while carrying external loads has been extensively studied (recent reviews: roberthson 1984; haisman 1988). It has been shown that load weight, walking velocity, and body mass, together with terrain factors such as gradient and surface, all have a direct effect on energy expenditure (goldman and iampietro 1962; soule and goldman 1972; soule et al. 1978). As a result, equations have been derived which allow the prediction of energy expenditure from these variables (givoni and goldman 1971; pandolf et al. 1977). Such predictions, in turn, can provide valuable information as to the physical severity of load carriage tasks and the potential for ensuing fatigue.

**DESCRIPTORS:**\*Physical Fitness,\*Walking,\*Treadmills, Conditioned Response, Response(Biology), Velocity, Body Weight, Energy, Military Exercises, Costs, Training, Measurement, Reprints.

**IDENTIFIERS:** Physiological Responses, Walking Velocity, Energy Cost, Load Carriage.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN EUR JNL. APPL. PHYSIOL., V63 P89-93 1991. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/10, 6/4

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**AD NUMBER:** A255553

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks

**UNCLASSIFIED TITLE:** A Progressive Resistance Weight Training Program Designed To Improve The Armor Crewman's Strength.

**PERSONAL AUTHORS:** May, Bradley W.

**REPORT DATE:** Jun 05, 1992

**PAGINATION:** 166p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The duties of a tank crewman are physically demanding. If a tank crewman is stronger, he will preform his job better, easier, quicker, and safer. Therefore, the focus of this thesis is the design of a weight training program to improve individual strength which will result in enhanced performance. While u.s. army physical fitness manuals contain substantial information on weight training and principles of strength training, current doctrine does not address the specific needs of armor crewmen in the performance of their tasks. Because there is no standardized or sample weight training program, each soldier must design his own plan by selecting exercises from the manuals. The goal of my research is to bridge this gap by synthesizing this information into a prototype program. Weight training, strength training, armor crewman strength related tasks.

**DESCRIPTORS:**\*Army,\*Physical Fitness,\*Training, Armor, Army Personnel, Bridges, Doctrine, Jobs, Prototypes, Theses, Weight, Tanks(Combat Vehicles).

**IDENTIFIERS:** Weight Training, Strength Training, Armor Crewmen, Strength Related Tasks, Tank Crewmen.

**FIELDS AND GROUPS:** 5/7, 15/1, 19/3

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**AD NUMBER:** A255145

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks

**UNCLASSIFIED TITLE:** An Evaluation Of The Fitness Knowledge Of U. S. Army Company And Battalion Commanders.

**PERSONAL AUTHORS:** Barone, Renard O.

**REPORT DATE:** Jun 05, 1992

**PAGINATION:** 164p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USACGSC

**REPORT CLASSIFICATION:** UNCLASSIFIED



**ABSTRACT:** The purpose of this study was to determine if the us army's company and battalion commanders possess the fitness knowledge necessary to physically train their units. To obtain information concerning commander's fitness knowledge, a 75 item questionnaire-survey was administered to active duty officers attending command and general staff officers college for academic year 91-92, lieutenant colonels instructing at fort leavenworth who had previously commanded a battalion, and to the lieutenant colonels attending a spring 1992 pre-command course. The survey, focused on the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition/nutrition). Data produced helped to indicate the extent that us army officers know and understand army fitness. The results of this study-revealed that as a group, officers do not possess an understanding of the fitness concepts contained in us army doctrine. Also, battalion commanders have a better understanding of cardiorespiratory fitness and general fitness than do company commanders. Physical fitness, us army, components of fitness.

**DESCRIPTORS:**\*Physical Fitness,\*Physiology, Active Duty, Army, Bodies, Doctrine, Nutrition, Questionnaires, Surveys, Universities, Endurance(Physiology).

**IDENTIFIERS:** Components Of Fitness, Fitness Knowledge,\*Knowledge Questionnaires.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A251597

**CORPORATE AUTHOR:** Institute For Defense Analyses Alexandria Va

**UNCLASSIFIED TITLE:** Military Personnel Policy Regarding Advancement Requirements.

**PERSONAL AUTHORS:** Goldberg, Matthew S.; Horowitz, Stanley A.

**REPORT DATE:** Jan, 1992

**PAGINATION:** 25p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ida-P-2566

**CONTRACT NUMBER:** MDA903-89-C-0003

**MONITOR ACRONYM:** IDA/HQ, SBI, XD

**MONITOR SERIES:** 91-37086, AD-E501 526, OASD-FMP

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This paper is one in a series of studies concerned with identifying approaches to maintaining a strong military manpower capability during a period of declining budgets and force levels. Its focus is on up-or-out policy, which requires that military personnel either be promoted after a certain period of time in the service or leave the service. We found that surprisingly few individuals actually leave the military due to up-or-out policy. Instead, individuals are forced to switch from operational positions, which many prefer, to managerial positions. This policy may improve personnel flows, thereby enhancing promotion opportunities for the stronger performers. It has also been argued that older individuals lack the physical fitness required to continue in operational positions. Evidence for pilots does not support this hypothesis.

**DESCRIPTORS:**\*Military Personnel, Promotion(Advancement), Manpower, Policies, Personnel Management, Military Budgets, Military Training, Operational Readiness, Physical Fitness, Performance(Engineering).

**IDENTIFIERS:** Lpn-Ida-T-L7-798, Sbi1, Fiscal Year 92, Experience, Yos(Year Of Service), Hyt(High Year Of Tenure), Up Or Out Policies, Military Manpower, Military Policies.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A249989

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Behavioral, Psychological, And Demographic Predictors Of Physical Fitness.

**PERSONAL AUTHORS:** Conway, Terry L.

**REPORT DATE:**, 1989

**PAGINATION:** 15p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-87-37

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Achieving higher levels of physical fitness has become a goal of many americans both for personal reasons (e.g., improved health and well-being) and for organizational reasons (e.g., corporate cost-savings; operational effectiveness). Understanding the factors which relate to physical fitness could help people improve their fitness. This study examined 1,357 navy men to estimate the associations among behavioral, psychological, and background factors and four components of physical fitness: (a) cardiorespiratory endurance (1.5-mile run), (b) muscular endurance (sit-ups), (c) flexibility (sit-and-reach test), and (d) body composition (estimated percent fat). Controlling for exercise activities, physical fitness was positively associated with 'wellness' behaviors, believing in the importance of physical fitness, expecting to reach/maintain ideal weight, being athletic as a youth, and education; fitness was negatively associated with tobacco use, 'preventive/avoidance' behaviors, age, and ever being overweight. Identifying and dealing constructively with such factors may help to structure better fitness programs tailored to the individual. Physical fitness predictors health and physical readiness navy men

**DESCRIPTORS:**\*Physical Fitness,\*Endurance(Physiology),\*Performance Tests, Background, Bodies, Costs, Education, Estimates, Health, Navy, Organizations, Savings, Structures, Tobacco Plants, Weight, Youth, Behavior, Psychology, Demography, Reprints.

**IDENTIFIERS:**\*Cardiorespiratory Endurance, Muscular Endurance, Flexibility.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN PSYCHOLOGICAL REPORTS, V65 P1123-1135, 1989. AVAILABLE TO DTIC USERS ONLY. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A249908

**CORPORATE AUTHOR:** Uniformed Services Univ Of The Health Sciences Bethesda Md

**UNCLASSIFIED TITLE:** Pepab Norm Development (Pepabnrm).

**PERSONAL AUTHORS:** Montgomery, Leslie C.; Deuster, Patricia A.

**REPORT DATE:** Jan 09, 1991

**PAGINATION:** 33p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** MIPR-90MM0531

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** To evaluate physical performance under experimental or treatment conditions, exercise test are routinely administered. We developed a tool for predicting the treadmill speed at which to run subjects in order to elicit a desired percentage of their maximal aerobic capacity. We generated, tested and refined a pair of regression equations: one for submaximal aerobic exercise, the other for high-intensity anaerobic exercise. Within the limitations of using linear equations to elicit physiologic responses that are sometimes curvilinear, the equations are useful to researchers. An actigraph activity monitor was worn while performing a series of sedentary and physically challenging activities; heart rate and oxygen consumption (vo2) were also monitored. Actigraph counts were correlated with vo2 and heart rate for the physically challenging tasks  $r = 0.729$ ,  $p < 0.001$ ;  $r = 0.709$ ,  $p < 0.001$ , respectively). We suggest that the actigraph could be used to grossly estimate energy expenditure because of the relation of oxygen consumption to expenditure (5 kilocalories are expended for each liter of oxygen consumed). Lastly, we developed a computerized physical activity questionnaire (paq) to quantify average daily energy expenditure. The paq quantifies work, sleep and leisure time-activities over a one-week and/or one-year period. Although dependent on the accuracy of subject recall, the paq has proven to be a useful tool for estimating energy expenditure in over 50 subjects. Used in conjunction with the actigraph, fairly accurate estimations of physical activity and energy expenditure could be made outside of the laboratory. Actigraph, aerobic, anaerobic, energy expenditure, ra 5 exercise, oxygen consumption, physical activity, questionnai

**DESCRIPTORS:** \*Treadmills, \*Physical Fitness, \*Performance Tests, Accuracy, Consumption, Energy, Equations, Estimates, Heart, Heart Rate, High Intensity, Intensity, Laboratories, Limitations, Monitors, Oxygen, Oxygen Consumption, Questionnaires, Rates, Recall, Response, Sleep, Test And Evaluation, Time, Tools, Velocity, Work, Workload.

**IDENTIFIERS:** Pe63002a, Wuda246134, \*Energy Expenditure, Paq(Physical Activity Questionnaire), \*Aerobic Activity, \*Anaerobic Activity.

**FIELDS AND GROUPS:** 5/9, 6/4, 5/2

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\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\*

**AD NUMBER:** A248392

**CORPORATE AUTHOR:** Defence And Civil Inst Of Environmental Medicine Downsview (Ontario)

**UNCLASSIFIED TITLE:** Blood Lactate Response To The Canadian Aerobic Fitness Test (Caft),

**PERSONAL AUTHORS:** Bell, Douglas G.; Jacobs, Ira; Lee, S. W.

**REPORT DATE:** 1992

**PAGINATION:** 5p

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Abstract In English And French.

**ABSTRACT:** The canadian standard test of fitness (cstf) was developed over two decades ago. It includes assessments of maximal aerobic power (vo2max), muscular endurance, muscular strength, flexibility, and body composition. A stepping exercise test, called the canadian aerobic fitness test (caft), is used to estimate vo2max (fitness and amateur sport, 1986). Depending upon the stage of the step test of which an individual can progress and the heart rate attained during that stage, an individual's vo2max is calculated and a gross fitness category is assigned. The individual's age, weight, and sex are also taken into

consideration when calculating the vo2max. The caft was originally developed as a tool to motivate Canadians to determine and enhance their fitness. Recently the Canadian forces (cf) adopted the cstf procedures for assessing fitness in their personnel. For this population, low scores from these assessments may limit career progress and/or result in dismissal. The accuracy of the test battery thus assumes considerable importance.

**DESCRIPTORS:** Accuracy, Aerobic Processes, Blood, Canada, Endurance(Physiology), Heart Rate, Human Body, Lactates, Military Forces(Foreign), Muscles, Personnel, Physical Fitness, Population, Response, Scoring, Sex, Strength(General), Test And Evaluation.

**IDENTIFIERS:** \*Reprints.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN CANADIAN JNL. OF SPORT SCIENCE, V17 N1 P14-18 1992. AVAILABLE FROM DEFENCE AND CIVIL INSTITUTE OF ENVIRONMENTAL MEDICINE, 1133 SHEPPARD AVE. WEST, P.O. BOX 2000, NORTH YORK, ONTARIO M3M 3B9. NO COPIES FURNISHED BY DTIC/NTIS.

**FIELDS AND GROUPS:** 6/3

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**AD NUMBER:** A245994

**CORPORATE AUTHOR:** Naval Postgraduate School Monterey Ca

**UNCLASSIFIED TITLE:** Enhancing The Physical Fitness In The Marine Corps.

**PERSONAL AUTHORS:** Collins, Thomas N.

**REPORT DATE:** Dec, 1991

**PAGINATION:** 63p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** NPS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Empirical tests have demonstrated a direct correlation between physical fitness and performance during sustained military operations. Physical fitness is probably the single most important factor for the individual marine. Currently, the marine corps does not promote a 'holistic' approach to physical fitness that accentuates the development of a marines strength, anaerobic and aerobic power. The objective of this thesis is to present how physical training in the marine corps is presently conducted and show how it can be enhanced. The focal point of a quality fitness program is the base fitness center, and although the marine corps concurs that fitness is a key ingredient to combat readiness, it chooses to operate the fitness centers as a recreational asset. This thesis identified fitness centers (gyms) as the core for implementing an aggressive fitness program within the marine corps and argues that they should run as operational entities and completely financed with appropriated funds.

**DESCRIPTORS:** Aerobic Processes, Anaerobic Processes, Combat Readiness, Correlation, Marine Corps, Marine Corps Personnel, Military Operations, Physical Fitness, Strength(General), Test And Evaluation, Theses, Training.

**IDENTIFIERS:** Strength, Anaerobic Power, Aerobic Power, Appropriated Funds, Combat Conditioning Center, \*Physical Fitness, \*Marine Corps.

**FIELDS AND GROUPS:** 5/9, 15/1

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**AD NUMBER:** A245993

**CORPORATE AUTHOR:** Naval Postgraduate School Monterey Ca  
**UNCLASSIFIED TITLE:** Weight Standards And Marine Corps Attrition.  
**PERSONAL AUTHORS:** Jackson, Kevin A.

**REPORT DATE:** Jun, 1991

**PAGINATION:** 63p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** NPS

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this thesis was to evaluate the effects on attrition of marine recruits failing to meet height weight standards at time of accession. This was accomplished by estimating two maximum likelihood, logit models using different samples of historical marine corps attrition data. The boot camp model examined attrition for the first three months of active duty. The first-term model focused on attrition from the end of boot camp to the end of the first enlistment term. The results of the study identified failure to meet height weight standards as the most significant variable in the boot camp model. The significance of the variable was superceded in the first term model by education, metal group, and program contract. Attrition probabilities proved to be significantly higher for overweight recruits, but decreased if the individual participated in the dep, had an aviation contract guarantee, or attended recruit training at san diego.

**DESCRIPTORS:** Active Duty, Aeronautics, Attrition, Contracts, Education, Height, Marine Corps, Marine Corps Personnel, Maximum Likelihood Estimation, Metals, Military Training, Models, Probability, Recruiting, Recruits, Standards, Theses, Training, Weight.

**IDENTIFIERS:** \*Weight Standards, \*Marine Corps Attrition, \*Height Standards, Delayed Entry Program(Dep), Theses, \*Physical Fitness.

**FIELDS AND GROUPS:** 5/9, 15/1

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**AD NUMBER:** A245729

**CORPORATE AUTHOR:** Army Research Inst For The Behavioral And Social Sciences  
Alexandria Va

**UNCLASSIFIED TITLE:** Physical Performance Predictors Of Success In Special Forces  
Assessment And Selection.

**PERSONAL AUTHORS:** Teplitzky, Martha L.

**REPORT DATE:** Nov, 1991

**PAGINATION:** 34p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ari-Rr-1606

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This research examines the relationship between scores on two physical performance measures--the army physical fitness test (apft) and a ruckmarch administered early in the special forces assessment and selection (sfas) program. The sample consisted of candidates from the 25 sfas classes conducted in fy89 (n=2059), fy90 (n=2074), and fy91 (first 8 classes only, n=1863). Only candidates who met all sfas prerequisites and were present for the first sfas event were included in the analysis sample. Results indicated that apft scores had an average correlation of  $r=.25$  with success in the program, and the ruckmarch had an average correlation of  $r=.43$ . Analyses designed to assess the utility of various apft and ruckmarch cut-off scores suggested that increasing minimum ruckmarch

scores would be an efficient way to raise success rates without eliminating potentially successful candidates.

**DESCRIPTORS:** Efficiency, Performance(Human), Predictions, Special Forces.

**IDENTIFIERS:** Apft(Army Physical Fitness Test), Physical Performance, Special Forces Assessment, Ruckmarches,\*Physical Fitness,\*Special Forces, Statistical Analysis, Pe63007a.

**FIELDS AND GROUPS:** 5/9, 15/1, 12/3

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**AD NUMBER:** A244498

**CORPORATE AUTHOR:** School Of Aerospace Medicine Brooks AFB Tx

**UNCLASSIFIED TITLE:** Field Study Evaluation Of An Experimental Physical Fitness Program For Usaf Firefighters.

**PERSONAL AUTHORS:** Myhre, L. G.; Grimm, W.; Van Kirk, G. R.; Tattersfield, R.; Sherrill, E. T.

**REPORT DATE:** May, 1991

**PAGINATION:** 30p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** AFESC/ESL, XF

**MONITOR SERIES:** TR-90-22, AFESC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Under emergency conditions, firefighting demands extraordinary levels of physical effort in performing tasks under some of the most life threatening conditions. Success in performing these tasks depends on the firefighters physical fitness, particularly his/her cardiovascular endurance. Studies have shown that firefighters, both in the civilian and military sectors, are generally less fit than their age related sedentary american counterparts. This report describes a field study to evaluate the safety and effectiveness of an experimental physical conditioning program that could be prescribed on an individual basis. Special emphasis was placed on a conservative program for older, less fit firefighters who would be most susceptible to exercise-related injury.

**DESCRIPTORS:** Cardiovascular System, Civilian Population, Endurance(General), Field Tests, Fire Fighting, Physical Fitness.

**IDENTIFIERS:**\*Firefighters,\*Physical Fitness,\*Fire Fighting, Air Force Personnel, Performance(Human), Endurance(Physiology), Cardiovascular System.

**FIELDS AND GROUPS:** 5/9, 13/12

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**AD NUMBER:** A242790

**CORPORATE AUTHOR:** Army Medical Research Inst Of Infectious Diseases Fort Detrick Md

**UNCLASSIFIED TITLE:** A Correlation Between Muscular Strength And Hydroxyproline Concentration In Human Patellar Tendon,

**PERSONAL AUTHORS:** Lemley, P. V.; Welch, M. J.

**REPORT DATE:** Mar, 1991

**PAGINATION:** 6p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USAMRIID

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The connective tissue of the knee is frequently injured by athletes, especially those involved in contact sports. It would be important in the prevention of injury as well as the strategy of physical fitness training to know whether the connective tissue is modified in response to athletic stress or training. The potential modification investigated was variability in the concentration of hydroxyproline, a post-translationally modified imino acid found principally in collagen protein. A correlation was sought between this variability and the leg strength parameters torque (expressed as ft-lbs), torque/body weight and work (expressed as ft-lbs). In a preliminary study of five subjects, no correlation was found between hydroxyproline concentration of the patellar tendon and any of the leg strength parameters. Reprints.

**DESCRIPTORS:** Body Weight, Connective Tissue, Modification, Muscles, Parameters, Physical Fitness, Prevention, Proteins, Recreation, Reprints, Strength(General), Tendons, Torque, Training, Wounds And Injuries.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN JNL. OF SPORTS MEDICINE AND PHYSICAL FITNESS, V31 N1 P104-107 MAR 91. AVAILABLE ONLY TO DTIC USERS. NO COPIES FURNISHED BY NTIS.

**FIELDS AND GROUPS:** 6/5

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**AD NUMBER:** A236048

**CORPORATE AUTHOR:** Army War Coll Carlisle Barracks Pa

**UNCLASSIFIED TITLE:** Peacetime Physical Fitness And Its Effect On Combat Readiness: An Air Force Perspective.

**PERSONAL AUTHORS:** Destadio, Frank J.

**REPORT DATE:** Apr 04, 1991

**PAGINATION:** 44p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** AWC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** America is rapidly becoming a nation of soft, out of shape men and women who can not endure, for an hour, the kind of stress that our ancestors faced daily. Today, the typical american is older physically than years give him the right to be. Fitness in the military is a time-honored and unquestionable axiom. Yet, there is little objective knowledge as to what criteria of fitness are necessary to maintain combat readiness. More than ten years ago it became apparent that, from a physical fitness/healthy lifestyle perspective, the military was not in an optimal readiness posture. In february 1980, the president requested the secretary of defense provide him an assessment of the services physical fitness programs. This request led to a department of defense symposium on military fitness in june 1980. The symposium reviewed existing fitness policies and programs. The result of the symposium, was a revised dod directive 1308.1; physical fitness and weight control. Was this enough? Are the current peacetime physical fitness programs effective? Do they adequately prepare our military to withstand the rigors of combat? This individual study project reviews these and other questions about the services peacetime physical fitness programs. Fitness is defined, guidance is reviewed, current efforts are analyzed to determine their validity, and recommendations are provided -all from an air force perspective.

**DESCRIPTORS:** Air Force, Combat Readiness, Control, Defense Systems, Operational Readiness, Optimization, Peacetime, Physical Fitness, Posture(General), Symposia, Weight, Women.

**IDENTIFIERS:** \*Air Force Personnel, \*Physical Fitness, Strength(Physiology), Endurance(Physiology), Aerobics.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A234656

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Associations Between Mood And Specific Health Composites During Navy Persian Gulf Operations.

**PERSONAL AUTHORS:** Burr, Ralph G.; Woodruff, Susan I.; Banta, Guy R.

**REPORT DATE:** Dec 15, 1990

**PAGINATION:** 17p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-90-42

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** BUMED

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Researchers have studied the association between mood and health symptoms because of concern for military personnel performance in extreme conditions, such as the heat and humidity encountered in the persian gulf. Previous field studies, using shipboard navy personnel during at-sea operations in the persian gulf have shown that crew members experience mood changes such as psychological fatigue, feelings of confusion, tension/anxiety, and depression and additionally report degradations in general physical health. Data from past research indicate that the ability to regulate mood is an important requisite for maintaining positive self-appraised health. This study provided further support for the idea of a mood-health link, and points to the usefulness of employing multiple health complaint composites rather than general measures when assessing mood-health associations. It was found that tension/anxiety and fatigue mood states differentially predicted 9 of 11 distinct health composites. Results suggest that strategies for altering mood (e.g., adequate periods of sleep, regulation of caffeine consumption, stress management training, exercise, and cognitive/behavioral interventions) might also have a positive effect on associated health complaints.

**DESCRIPTORS:** Anxiety, Caffeine, Composite Materials, Consumption, Control, Degradation, Fatigue, Health, Humidity, Management, Management Training, Military Personnel, Naval Operations, Naval Personnel, Persian Gulf, Physical Fitness, Psychology, Reports, Ship Personnel, Signs And Symptoms, Sleep, Stress(Psychology), Tension.

**IDENTIFIERS:** Health Surveys, \*Attitudes(Psychology), Health, \*Stress(Psychology), \*Stress(Physiology), Mood, Pe63206n, Pe63706n, Wudn248545.

**FIELDS AND GROUPS:** 5/8, 6/10

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**AD NUMBER:** A233432

**CORPORATE AUTHOR:** Army Research Inst For The Behavioral And Social Sciences  
Alexandria Va



**UNCLASSIFIED TITLE:** Project A Spatial Tests And Military Orienteering Performance In The Special Forces Assessment And Selection Program.

**PERSONAL AUTHORS:** Busciglio, Henry H.; Teplitzky, Martha L.; Welborn, Christine

**REPORT DATE:** Feb, 1991

**PAGINATION:** 37p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ari-Tr-921

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** ARI

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This research assessed the relationship between scores on new project a tests of spatial ability and performance in the special forces assessment and selection (sfas) program, including military orienteering (i.e., navigating over unfamiliar territory from a drop-off point to a prescribed destination). Candidates in two sfas classes took the project a map, orientation, and maze tests. Researchers also used two measures of general cognitive ability and a measure of physical fitness as predictor scores. Criterion data were gathered as candidates proceeded through the sfas program. The authors performed a series of univariate and multivariate analyses on these data. The major results indicate that (a) spatial scores are moderately related to scores on individual military orienteering tasks, (b) certain spatial tests scores and scores on the army physical fitness test (apft) lead to modest increases in the predictability of overall orienteering performance and graduation from the sfas program, and (c) spatial, cognitive, and apft scores do not lead to any appreciable improvement in the prediction of voluntary and involuntary attrition.

**DESCRIPTORS:** Army Equipment, Attrition, Cognition, Measurement, Multivariate Analysis, Physical Fitness, Predictions, Scoring, Selection, Space Perception, Spatial Distribution, Special Forces, Test And Evaluation, Variations.

**IDENTIFIERS:** Pe63007a, As792, Wuh1, \*Performance Tests, \*Perforance(Human), \*Special Forces.

**FIELDS AND GROUPS:** 5/8, 5/9, 15/1

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**AD NUMBER:** A230727

**CORPORATE AUTHOR:** Center For Naval Analyses Alexandria Va

**UNCLASSIFIED TITLE:** Physical Fitness Of Marine Corps Recruits.

**PERSONAL AUTHORS:** Rupinski, Timothy E.

**REPORT DATE:** Apr, 1989

**PAGINATION:** 76p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Crm-88-190

**CONTRACT NUMBER:** N00014-87-C-0001

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** MCCDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The marine corps views the physical fitness of every marine as essential to its overall effectiveness. This research memorandum reviews the physical fitness test (pft), estimates the effect of height and weight measures on the pft scores of recruits, assesses the need for minimum and maximum weight standards, and forecasts the impact of alternative accession standards on physical fitness.

**DESCRIPTORS:** Marine Corps, Marine Corps Personnel, Physical Fitness, Recruits, Scoring, Standards, Test And Evaluation, Weight.

**IDENTIFIERS:** Pe65153m, Physical Fitness, Marine Corps Training, Statistical Analysis.

**FIELDS AND GROUPS:** 6/4

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**AD NUMBER:** A230416

**CORPORATE AUTHOR:** Army Natick Research Development And Engineering Center Ma

**UNCLASSIFIED TITLE:** An Assessment Of Long-Term Changes In Anthropometric

Dimensions: Secular Trends Of U.S. Army Males.

**PERSONAL AUTHORS:** Greiner, Thomas M.; Gordon, Claire C.

**REPORT DATE:** Dec, 1990

**PAGINATION:** 72p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Natick/Tr-91/006

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** NATICK

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This report describes long-term changes in the body dimensions within the army population for 22 body dimensions in four racial/cultural groups: whites, blacks, hispanics and asian/ pacific islanders. Individuals were grouped by birth year into 12 five-year cohorts, which span the years 1911 to 1970. Rates of change were calculated by regressing age-adjusted dimensions against cohort. Analyses of these relationships showed that almost all dimensions sustained statistically significant linear trends, the few exceptions being found within the asian/pacific islanders group. Furthermore, except for the asian/pacific islanders, the greatest relative rates of change were found in dimensions related to soft tissue development rather than skeletal dimensions. This pattern is consistent with the most recent american cultural emphasis on health and physical fitness. The markedly different patterns seen in asian/pacific islanders were best explained by immigration: they have experienced a linear increase in the proportion of foreign born members.

**DESCRIPTORS:** Anthropometry, Army, Culture, Hispanics, Long Range(Time), Males, Patterns, Physical Fitness, Population, Race(Anthropology), Rates, Sizes(Dimensions), Skeleton, Soft Tissues.

**IDENTIFIERS:** Linear Trends, Asian-Pacific Islanders.

**FIELDS AND GROUPS:** 5/5, 5/9, 6/4

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**AD NUMBER:** A230365

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** An Assessment Of Pre- And Post-Fitness Measures In Two Remedial Conditioning Programs.

**PERSONAL AUTHORS:** Woodruff, Susan I.; Conway, Terry L.; Linenger, Jerry M.

**REPORT DATE:** Sep 20, 1990

**PAGINATION:** 25p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-90-22

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** BUMED

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Because of the severe sanctions that can be levied against personnel failing the prt and body fat standards, it is important to assess the effectiveness of a basic exercise program based program in reducing body fat and improving prt performance among navy personnel. The purpose of this study was to determine if taking part in a command-organized remedial program based on the bep is effective in reducing body fat, improving failure-specific performance on the various components of the prt, and improving overall physical fitness level. Remedial physical conditioning programs at a submarine base and an air station were evaluated. Pre- and postprogram prt results were collected for participants at the submarine base (n=64) and the air station (n=44) to assess changes in the number of curl-ups, number of push-ups, run/walk time, overall classification score, percent body fat, and percent passing the overall prt. In general, comparisons over time showed a trend toward improvement among participants in their performance on prt fitness components and overall classification score.

**DESCRIPTORS:** \*Physical Fitness, \*Health, \*Naval Personnel, Nutrition, Body Weight.

**IDENTIFIERS:** Pe63706n, Physical Fitness, Nutrition, Health, Naval Personnel, Body Weight.

**FIELDS AND GROUPS:** 5/9, 6/5, 6/4

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**AD NUMBER:** A227007

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Relationship Of Soldier Load Carriage To Physiological Factors, Military Experience And Mood States.

**PERSONAL AUTHORS:** Knapik, Joseph; Staab, Jeffery; Bahrke, Michael; O'connor, John; Sharp, Marilyn

**REPORT DATE:** May, 1990

**PAGINATION:** 39p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T17-90

**MONITOR ACRONYM:** XA

**MONITOR SERIES:** USARIEM

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study examined the relationship between performance of a heavy load carriage task and various physiological measurements, military experience and mood states. Eighty-four soldiers underwent a series of tests, then completed a maximal effort load carriage task. Physiological tests included body composition (by densitometry), various measures of isometric and isokinetic strength, a treadmill vo(2) max, and an anaerobic capacity test. Field test included the army physical fitness test (apft), a marksmanship task, a vertical jump and a grenade throw for distance. The profile of mood states (poms) was administered before and after the march. Measures of military experience included rank, time in service and time in the unit. The load carriage task required soldiers to carry a total load of 46 kg over a distance of 20 km as fast as possible. The physiological measurements, field tests, military experience and mood states were correlated with the road march times. Body mass, fat free mass, absolute vo(2) max, and most muscle strength measurements were associated with faster road march time ( $p < 0.05$ ). These relationships were reduced when partial correlation techniques were used to eliminate the intercorrelation between fat free mass and the other physiological measures, thus emphasizing the importance of fat free mass or muscle mass for successful load carriage performance. (sdw)

**DESCRIPTORS:**\*Strength(Physiology),\*Performance(Human), Anaerobic Processes, Army Equipment, Army Personnel, Capacity(Quantity), Correlation Techniques, Densitometers, Fats, Field Tests, Human Body, Kinetics, Loads(Forces), Marksmanship, Mass, Measurement, Muscles, Performance(Engineering), Physical Fitness, Physiology, Roads, Test And Evaluation, Vertical Orientation.

**IDENTIFIERS:** Pe62787a, As879, Wu133.

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A226412

**CORPORATE AUTHOR:** Naval Aerospace Medical Research Lab Pensacola Fl

**UNCLASSIFIED TITLE:** Sustained Flight Operations In Navy P-3 Aircraft.

**PERSONAL AUTHORS:** Meyer, L. G.; Dejohn, C. A.

**REPORT DATE:** Apr, 1990

**PAGINATION:** 27p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Namrl-1355

**MONITOR ACRONYM:** XN

**MONITOR SERIES:** NMRDC

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Flight crew fatigue during sustained flight operations (susops) is an important aeromedical problem. We evaluated the effects of susops on aircrew stress and fatigue in three u.s. navy p-3 orion crews (n = 21) before, during, and after a 6-month overseas deployment. Pre- and postdeployment laboratory tests measured aerobic capacity, pulmonary function, muscular strength and endurance, and resting blood chemistry. Postdeployment lung capacity, blood chemistry values, grip strength, and leg endurance all improved while leg strength, aerobic capacity, and percentage body fat decreased. During deployment, we collected inflight urine samples and subjective fatigue and positive/negative mood surveys hourly. Urinary sodium and potassium levels were significantly higher inflight compared to postdeployment control values. Urinary norepinephrine concentrations inflight were lower compared to controls. Subjective-fatigue scores decreased from preflight to postflight. Positive mood scores decreased while negative mood scores increased. Subjects showed varying levels of stress and fatigue, which did not appear to compromise performance and safety. The 15-h nonflying intervals between flights provided sufficient rest for the crews. Keywords: fatigue, sustained flight operations, human subjects, physical fitness, patrol community, urinalysis, mood, warfare. (sdw)

**DESCRIPTORS:**\*Aeromedical Evacuation,\*Crews,\*Fatigue(Physiology),\*Flight Crews, Adipose Tissue, Aerobic Processes, Blood Chemistry, Capacity(Quantity), Communities, Endurance(General), Flight, Hands, Inflight, Muscles, Patrolling, Physical Fitness, Potassium, Pulmonary Function, Sampling, Sodium, Strength(General), Strength(Physiology), Stresses, Urinalysis, Urine, Value, Warfare, Patrol Aircraft.

**IDENTIFIERS:** Pe62758n, Wudn477519, P-3 Aircraft.

**FIELDS AND GROUPS:** 6/10, 1/2

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**AD NUMBER:** A224586

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Assessment Of Body Weight Standards In Male And Female Army Recruits.

**PERSONAL AUTHORS:** Friedl, Karl E.; Vogel, James A.; Bovee, Matthew W.; Jones, Bruce H.

**REPORT DATE:** Dec 29, 1989

**PAGINATION:** 95p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ariem-T15-90

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Army enlisted candidates are screened for obesity with height-weight tables (ar 40-501) which exclude few young males but approximately one third of young females in the u.s. population. Another regulation (ar 600-9) sets standards for retention in the army on the basis of body fat estimated from circumferences. The suitability of accession weight standards with respect to the retention standards was examined by studying the effect of excess fatness on attrition from active duty, physical performance, and ability to achieve fat standards after basic training. Keywords: body weight; fat cells; anthropometry; recruits; physical fitness; weight loss; attrition; standards; army personnel. (cp)

**DESCRIPTORS:**\*Army Personnel,\*Body Weight,\*Enlisted Personnel,\*Obesity,\*Recruits,\*Standards, Active Duty, Adipose Tissue, Anthropometry, Attrition, Fat Cells, Females, Males, Military Training, Performance(Human), Physical Fitness, Retention(General), Weight Reduction.

**IDENTIFIERS:** Pe62787a, As879.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A224557

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Annual Historical Report, Amedd Activities, Calendar Year 1989.

**REPORT DATE:**, 1989

**PAGINATION:** 142p Media Cost: \$ 11.00 Price Code: Ab

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Conducts research on the effects of temperature, altitude, work and nutrition on the health and performance of the individual soldier and combat crews operating army systems. Assesses decrements to soldier or combat crew performance caused by the synergy of environmental extremes protective measures used in nbc sustained operations. Conducts research on the biomedical processes limiting physical performance to determine physical fitness requirements and seek solutions to medical problems related to physical training and exercise. Defines the complex interaction of environmental/operational stress and army systems and develops, evaluates and assists in the implementation of strategies designed to protect the soldier and enhance performance. In coordination with the natick research, development & engineering center (natick) and through liaison with other federal agencies, conducts research to develop the technology base required to evaluate feeding strategies for operation rations and supplements to minimize soldier performance decrements under sustained combat conditions and discharge the army surgeon general's responsibilities as dod executive agent for nutrition.

**DESCRIPTORS:**\*Army Research,\*Military Medicine, Military Forces(United States), Army Equipment, Army Personnel, Combat Effectiveness, Crews, Degradation, Environmental Protection, Environments, Executive Routines, Feeding, Health, Interactions, Medicine,

Nutrition, Operation, Performance(Human), Physical Fitness, Physicians, Range(Extremes), Rations, Requirements, Solutions(General), Strategy, Stresses, Surgery, Training, Warfare.  
**FIELDS AND GROUPS:** 6/5

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**AD NUMBER:** A221239

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Frequency Of Loaded Road March Training And Performance On A Loaded Road March.

**PERSONAL AUTHORS:** Knapik, Joseph; Bahrke, Michael; Staab, Jeffrey; Reynolds, Katy; Vogel, James

**REPORT DATE:** Apr, 1990

**PAGINATION:** 50p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T13-90

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Four groups of soldiers (n=137) participated in a 9 week physical training program that was similar except for the amount of loaded road march training. Group o (gpo) did not perform any road marching; group 1 (gp1) road marched once a month; group 2 (gp2) road marched twice a month; group 4 (gp4) road marched 4 times a month. The training program involved progressive increases in running, resistance training and interval training and some calistenic exercises. Before and after training soldiers performed a maximal effort 20 km road march while carrying a 46 kg total load. Some soldiers were monitored for heart rate during both road marches. Results showed that post-training road march times were significantly longer than pre-training times presumably because of (a) longer voluntary rest breaks and (b) higher environmental temperature. There were no significant differences in road march times among the 4 groups on the pre-test. On the post-test, gp4 and gp2 had significant faster road march times that gp1 and gpo. There were no significant differences between gp2 and gp4. After both road marches decrements were found in marksmanship and maximum grenade throwing distance. These data suggest that twice monthly road marching as part of a progressive physical training program results in 20 km road march times equivalent to road march training 4 times per month. A strenuous road march can significantly impair some aspects of military performance. Keywords: injuries; marksmanship; muscle soreness. (kr)

**DESCRIPTORS:**\*Army Personnel,\*Walking,\*Endurance(Physiology),\*Physical Fitness,\*Army Training, Environments, Frequency, Heart Rate, Intervals, Resistance, Roads, Muscles, Temperature.

**IDENTIFIERS:** Pe62787a, Wu134, As879,\*Marching,\*Soldiers..

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A218194

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Estimation Of Human Power Output From Maximal Vertical Jump And Body Mass,

**PERSONAL AUTHORS:** Harman, Everett A.; Rosenstein, Michael T.; Frykman, Peter N.; Rosenstein, Richard M.; Kraemer, William J.

**REPORT DATE:**, 1988

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M12-90

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The lewis formula and nomogram, published in widely distributed textbooks, are used to calculate power output from vertical jump-and-reach distance and body weight. Despite the fact that the method has never been supported by refereed journal publication and the texts never revealed whether peak or average power was being estimated, the test has become increasingly used by physical educators, coaches and researchers. Theoretical analysis has raised questions about the the formula's validity. In order to evaluate the test, lewis formula derived power output was compared to peak power and average power generated by 17 male subjects jumping vertically from a computer-interfaced force plate. Use of the lewis formula should be discontinued because it does not provide accurate estimates of either peak or average power produced by the muscles. While the force-platform technique remains the method of choice for precise jumping-power determinations in the laboratory, the above equations can be used in conjunction with other tests to screen applicants for athletic teams and physically demanding jobs, and to monitor progress among participants in physical training and programs. Keywords: lewis formula; force platform; tests. (kt)

**DESCRIPTORS:**\*Exercise(Physiology),\*Peak Power, Accuracy, Body Weight, Distribution, Equations, Estimates, Formulations, Humans, Instructors, Mass, Muscles, Output, Physical Fitness, Physical Properties, Platforms, Power, Textbooks, Theory, Training, Vertical Orientation.

**IDENTIFIERS:** Lewis Formula, Namograms, Vertical Jump..

**FIELDS AND GROUPS:** 6/4, 14/2

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**AD NUMBER:** A218117

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Heat Tolerance And Aging With Application To Industrial Jobs.

**PERSONAL AUTHORS:** Pandolf, Kent B.

**REPORT DATE:** Jan, 1990

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Exercise-heat tolerance has been shown to be reduced in older individuals. Some authors have suggested that aerobically fit older individuals have fewer performance decrements during exercise- heat stress than less fit individuals of the same age. However, none of these studies matched older and younger individuals for any pertinent physiological and/or morphological variables. Recently, experimental results were reported where men differed in age by 25. 2 years, but were matched for body weight, surface area, surface area-to-weight ratio, percent body fat and maximal aerobic power. Evidence from this study indicated little impairment of the thermoregulatory system during exercise-heat stress at least through the fifth decade of life for these aerobically trained older men. These findings show the importance of aerobic training and other morphological considerations in selecting older individuals for jobs in hot industrial environments. (aw)

**DESCRIPTORS:**\*Aerobic Processes,\*Exercise(Physiology),\*Heat Tolerance,\*Physical Fitness,\*Aging(Physiology), Adipose Tissue, Body Weight, Degradation, Heat

Stress(Physiology), Hot Regions, Industries, Jobs, Morphology, Surfaces, Training, Variables.

**IDENTIFIERS:** Pe62787a, As879, Wu132.

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A218014

**CORPORATE AUTHOR:** Texas Coll Of Osteopathic Medicine Fort Worth Dept Of Physiology

**UNCLASSIFIED TITLE:** Cardiovascular Responses To Lower Body Negative Pressure In

Endurance And Static Exercise-Trained Men,

**PERSONAL AUTHORS:** Smith, Michael L.; Raven, Peter B.

**REPORT DATE:**, 1986

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** F33615-85-C-4511

**MONITOR ACRONYM:** USAFSAM

**MONITOR SERIES:** JA-86-91

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In Medicine And Science In Sports And Exercise, V18 N5  
P545-550 Oct 86.

**ABSTRACT:** The cardiovascular responses to lower body negative pressure (lbnp) (to -50 torr) were examined in 8 sedentary control (ut), 8 endurance-trained (et), and 8 weight-trained (wt) human subjects. The results were used to compare and contrast the blood pressure control system of the three subject groups. The primary differences in response included a more effective maintenance of blood pressure, by reason of greater stroke volume and cardiac indices of the wt subjects during ( $p < 0.05$ ). Peripheral vascular resistances were not different ( $p > 0.05$ ) throughout lbnp between the three groups. Therefore, the improved blood pressure maintenance of the wt subjects was attributed to a cardiac effect. The et subjects were less effective in maintaining blood pressure than ut or wt subjects this finding was apparently due to an attenuated baroreflex sensitivity, as evidence by a significantly ( $p < 0.05$ ) lower delta heart rate/delta systemic blood pressure ratio, 0.99 for et vs 1.51 and 1.38 for the ut and wt group respectively, calculated from the responses observed from 0 to -50 torr of lbnp. Keywords: reprints.

**DESCRIPTORS:**\*Blood

Pressure,\*Endurance(Physiology),\*Heart,\*Exercise(Physiology),\*Physical Fitness, Cardiovascular System, Control, Heart Function Tests, Low Pressure, Maintenance, Reprints, Resistance(Biology), Response(Biology), Volume, Heart Rate.

**IDENTIFIERS:** Pe62202f, Wuusafsam7930145a.

**FIELDS AND GROUPS:** 6/4, 6/10

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**AD NUMBER:** A215227

**CORPORATE AUTHOR:** American Association Of Physics Teachers College Park Md

**UNCLASSIFIED TITLE:** Support For Training Program United States Physics Team For The  
International Physics Olympiad,

**PERSONAL AUTHORS:** Wilson, Jack M.

**REPORT DATE:** Nov 20, 1989

**PAGINATION:** 3p Media Cost: \$ 6.00 Price Code: Aa



**CONTRACT NUMBER:** N00014-89-J-1668

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Steven Gubser of Cherry Creek High School in Colorado was the winner of the XX International Physics Olympiad held in Warsaw, Poland, in late July. His total of 46 1/3 points out of a possible 50 placed him at the top of the 150 competitors from 30 countries. Second place was won by a Hungarian with 45 1/2 points with third place going to a Romanian student with 45 points. In total, ten gold medals were awarded to competitors from nine different countries with West Germany winning two. Jason Jacobs and Derrick Bass won bronze medals for the United States; James Sarvis received an honorable mention with Jessica Millar falling just short of an honorable mention. The five competing members of the U. S. Team and their coaches had a marvelous time in Poland. The XXI International Physics Olympiad will be July 5-13, 1990, in Groningen, Holland.

**DESCRIPTORS:** \*Recreation, \*Training, \*Teams(Personnel), Colorado, International, Netherlands, Physics, Poland, United States, West Germany, Students, Physical Fitness.

**FIELDS AND GROUPS:** 5/6

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**AD NUMBER:** A213834

**CORPORATE AUTHOR:** Foreign Technology Div Wright-Patterson AFB Oh

**UNCLASSIFIED TITLE:** Effect Of Age, Occupation, And Physical Training On Human Tolerance To Long-Term Acceleration,

**PERSONAL AUTHORS:** Suvorov, P. M.

**REPORT DATE:** Aug 16, 1989

**PAGINATION:** 11p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ftd-Id(Rs)T-0585-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Trans. Of Komischeskaya Biologiya I Meditsina, (Ussr) N2 P62-66 1968, By Marilyn Olachea.

**ABSTRACT:** The effect of the age, occupation and physical training on the human tolerance to long term accelerations was investigated. 427 test subjects - fighter pilots, engineers, physicians and research workers were used in the experiments. The lowest tolerance was found in the test subjects of the age range of 20-24 while the highest in those of 30-34. The test subject of 40-49 showed a decreased tolerance to accelerations. Certain differences in the acceleration tolerance and pattern of physiological reactions were found between pilots and representatives of other professions. As to the sportsmen, gymnasts, weight-lifters and acrobats they exhibited a better tolerance as compared to long-distance runners, football players and skiers who showed the tolerance level similar to that of people who did not go in for sports regularly. Keywords: aviation medicine; acceleration tolerance; astronauts. (kt)

**DESCRIPTORS:** \*Acceleration Tolerance, \*Aviation Medicine, \*Aging(Physiology), \*Tolerances(Physiology), Acceleration, Astronauts, Humans, Jobs, Long Range(Time), Patterns, Physical Fitness, Physicians, Physiology, Pilots, Recreation, Scientists, Tolerance, Training.

**FIELDS AND GROUPS:** 6/10, 6/5

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**AD NUMBER:** A213831

**CORPORATE AUTHOR:** Naval Military Personnel Command Washington Dc

**UNCLASSIFIED TITLE:** Navy Physical Conditioning Guide,

**PERSONAL AUTHORS:** Marcinik, Ed

**REPORT DATE:** Mar 30, 1989

**PAGINATION:** 93p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Navpers-15603

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Increasing daily physical activity is the first step toward greater physical fitness, especially if you have been inactive. If you have been sedentary you cannot expect your fitness to improve overnight with a sudden increase in physical activity. Instead of working out the week before the physical readiness test is given, you should start thinking in terms of a lifelong commitment to a more active lifestyle. Be sure to select the types of activity that you enjoy. Working out should be fun. It should be rewarding and enjoyable. It should be something you look forward to doing. You should also exercise on a regular basis. It is much better to run three miles, three times per week; than nine miles, one time per week. Set up a regular exercise routine listing the type and frequency of your workouts, the length of time of each workout and how you will fit them into your daily work schedule. Remember to start off slowly and build up gradually. It is better to start off walking a couple miles than running one, five minute mile. Once your aerobic fitness increases and you lose some body fat, try to increase the frequency and duration of your workouts. Whatever you do, stay with your program. Even if you miss an occasional workout or don't see rapid progress, don't get discouraged. By becoming and remaining physically active, you will notice a significant change in your attitude and energy level as well as your physique keywords: naval personnel; navy training; exercise. (kt)

**DESCRIPTORS:**\*Exercise(Physiology),\*Naval Personnel,\*Physical Fitness, Adipose Tissue, Daily Occurrence, Energy Levels, Naval Training, Operational Readiness, Manuals, Naval Planning, Scheduling, Test And Evaluation, Time Intervals.

**FIELDS AND GROUPS:** 6/10, 6/4

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**AD NUMBER:** A213665

**CORPORATE AUTHOR:** Office Of The Chief Of Naval Operations Washington Dc

**UNCLASSIFIED TITLE:** Career Counseling Information.

**REPORT DATE:**, 1989

**PAGINATION:** 16p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Contents: navy sponsor program; cwo4 fitness reports and e-9 evaluations; enlisted leader development; new fleet liaison branch in nmpc; amh and ams advancement opportunities; special duty assignment pay (sdap)-rt ak/sk; dk nec 2905; ak career options; detailers extend hours for westpac sailors; selective reenlistment bonus (srb) and career reenlistment objective (creo) for et - how they are related; management of pregnant servicewomen; aviation avionics rating merger; recruiter fact card for the master at arms (ma) rating; clarification of lateral conversions into the religious program specialist (rp) rating; medical service corps entry age standard; selective reenlistment bonus update; enlisted separation questionnaire; command fitness coordinator training manual; physical readiness program computer software; health and physical readiness videos; health and physical readiness publications; health and fitness; navy percent body fat standards. (sdw)

**DESCRIPTORS:**\*Careers,\*Counseling, Adipose Tissue, Aeronautics, Avionics, Documents, Enlisted Personnel, Instruction Manuals, Leadership Training, Naval Personnel, Operational Readiness, Physical Fitness, Questionnaires, Ratings, Reenlistment, Religion, Separation, Specialists, Standards.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A213069

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Physical Fitness Of U.S. Navy Special Forces Team Members And Trainees.

**PERSONAL AUTHORS:** Beckett, Marcie B.; Goforth, Hal W.; Hodgdon, James A.

**REPORT DATE:** Jul 07, 1989

**PAGINATION:** 26p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-89-29

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Candidates for u.s. navy special warfare sea air land (seal) teams undergo vigorous training at basic underwater demolition/seal (bud/s) school. Recently, some question has arisen as to whether bud/s graduates are adequately prepared to become active seal team members (seals). This study was undertaken to compare bud/s graduates with seals with respect to their physical condition and capacities. Thirty-nine bud/s graduates and 48 seals were characterized in terms of physical fitness, physique and cold pressor response. Bud/s graduates were found to be leaner than seals, to have slightly less muscle strength and anaerobic power, but greater muscle endurance and aerobic capacity. Both groups had similar responses to a cold pressor test. These differences undoubtedly reflect differences between the training and operational environments, and some consideration must be given to whether the training program needs to be modified to change physical fitness outcomes. It should be recognized, however, that these differences in physical fitness are relatively small, and bud/ s graduates appear sufficiently prepared to join the ranks of operational seals. (kt)

**DESCRIPTORS:**\*Military Personnel,\*Endurance(Physiology),\*Physical Fitness, Aerobic Processes, Anaerobic Processes, Capacity(Quantity), Muscles, Physical Properties, Power, Requirements, Seals(Stoppers), Strength(Physiology), Teams(Personnel), Trainees, Training, Underwater Demolition.

**IDENTIFIERS:**\*Seal(Sea Air Land), Special Operations Forces.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A212617

**CORPORATE AUTHOR:** Army Concepts Analysis Agency Bethesda Md

**UNCLASSIFIED TITLE:** Fire Fighting Task Force (Fire).

**PERSONAL AUTHORS:** Van Nostrand, Sally J.; Headley, Donald B.; King, James M.; Fatkin, Linda T.; Hudgens, Gerald A.

**REPORT DATE:** Apr, 1989

**PAGINATION:** 165p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Caa-Sr-89-10

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study is part of a continuing effort to develop soldier data and performance algorithms (pergorithms) needed to represent soldiers in the caa combat models. Difficult-to-quantify factors of combat are present in forest fire fighting--fear, continuous operations, uncertainty. A task force of analysts and research personnel from caa, ari, hel, and wrair studied soldiers who fought forest fires in and around yellowstone national park during 1988. Every aspect of the forest fire fight stressed soldiers--from the deployment process, to fire fighting, to physical requirements, to boredom experienced when performing fuel reduction duties or waiting to find out where and what they would do today. Cumulative stress levels were significantly higher than the army has previously measured in controlled settings. The physical stress was greater than that for which soldiers train. Keywords: stress(physiology), human factors, combat models, fire fighting, and physical training, physical fitness. (sdw)

**DESCRIPTORS:**\*Fire Fighting,\*Forest Fires,\*Task Forces, Algorithms, Analysts, Army Personnel, Boredom, Continuity, Control, Deployment, Fuels, Human Factors Engineering, Models, Operation, Personnel, Physical Fitness, Physical Properties, Rates, Reduction, Requirements, Setting(Adjusting), Stresses, Stress(Physiology), Training, Warfare.

**FIELDS AND GROUPS:** 6/10, 23/4, 13/12

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**AD NUMBER:** A212072

**CORPORATE AUTHOR:** Academy Of Health Sciences (Army) Fort Sam Houston Tx Health Care Administrati On

**UNCLASSIFIED TITLE:** A Study To Determine The Impact Of Medical Readiness Programs On Fiscal Year 1987 Resource Utilization At Tripler Army Medical Center.

**PERSONAL AUTHORS:** Mcadams, Richard G.

**REPORT DATE:** Oct 01, 1988

**PAGINATION:** 76p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Hac-46-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The two reasons for conducting this study are: first, to validate the data reported in the medical expense and performance report for fy 1987, and, the second reason is to provide a developmental framework for future operating budget recommendations. The purpose of this study is to determine the impact of medical readiness programs on fiscal year 1987 resource utilization at tripler army medical center. During fy 87 medical readiness programs at tripler army medical center consumed a total of 58,444.5 man-hours (29 ftes) and \$15,639 of operations and maintenance, army (oma) funds in direct cost. Readiness planning and administrative activities consumed 15,111 man-hours (\$2,902), readiness exercises consumed 3197.5 man-hours (\$8,311), readiness training consumed 24,281 man-hours (\$3200), personnel deployments consumed 4968 man-hours, logistics readiness consumed 7600 man- hours, and physical training 3287 man-hours. Additionally, physical personnel deployment cost tamc 433 potential outpatient appointments or 130 medical care composite units (mccus) during fiscal year 1987. This resulted in a loss of \$20,409 in potential supply dollar reimbursements. Keywords: medical readiness, cost of training, readiness planning and administration, readiness exercises, readiness training, personnel deployments, logistics readiness physical training, medical services, budgets. (kt)

**DESCRIPTORS:**\*Hospitals,\*Medical Services,\*Operational Readiness, Budgets, Costs, Deployment, Logistics, Management, Army Facilities, Medicine, Personnel, Physical Fitness, Physical Properties, Planning, Supplies, Training.

**FIELDS AND GROUPS:** 6/5, 5/3

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**AD NUMBER:** A212050

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Loads Carried By Soldiers: Historical, Physiological, Biomechanical And Medical Aspects.

**PERSONAL AUTHORS:** Knapik, Joseph

**REPORT DATE:** Jun, 1989

**PAGINATION:** 41p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T19-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Loads currently recommended by the u.s. army infantry school are 33 kg for an approach march load (45% of body weight) and 22 kg for a combat load (30% of body weight). Methods of reducing loads include the use of lightweight technology, load tailoring, auxiliary transport systems, doctrinal changes, and physical training. Specific physiological factors involved in load carriage include aerobic capacity and muscle strength. The specific muscle groups involved in load carriage have been examined using correlational approaches, emg analysis and strength changes after marching. Most of the functional muscle groups of the lower body (hip extensors, knee flexors and extensors, ankle plantar flexors), are involved in load carriage performance. It also appears that the trunk extensors may be important. A combination of jogging, interval training and resistance training will improve load carriage performance over short distances. Marching with loads in combination with other military training appears to increase vo2 max in recruits. The energy cost of load carriage is minimized if the load is placed as close to the center of mass of the body as possible. Self pacing results in a lower energy cost than a forced pace. Loads carried on the feet increase the energy cost of 0.7 to 1.0% for every additional 0.1 kg. Lower extremity injuries are those most commonly experienced in load carriage. (aw)

**DESCRIPTORS:**\*Army Personnel,\*Load Distribution,\*Performance(Human),\*Physical Fitness,\*Recruits,\*Strength(Physiology),\*Biodynamics, Aerobic Processes, Auxiliary, Capacity(Quantity), Costs, Energy, Extremities, Intervals, Lightweight, Low Costs, Low Energy, Military Training, Muscles, Physiology, Resistance, Short Range(Distance), Biophysics, Biomechanics, Army Training, Transport, Warfare, Wounds And Injuries, Electromyography, Body Weight, Mass.

**IDENTIFIERS:** As879, Wuda315433, Pe62787a,\*Load Carrying,\*Load Carriage.

**FIELDS AND GROUPS:** 6/4, 6/10, 6/5

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**AD NUMBER:** A209555

**CORPORATE AUTHOR:** Academy Of Health Sciences (Army) Fort Sam Houston Tx Health Care Administrati On

**UNCLASSIFIED TITLE:** A Comparative Analysis Of Army Physical Readiness Test Results Of Amedd Units Without Formal Physical Training Programs.

**PERSONAL AUTHORS:** Phillips, Edward P., Jr

**REPORT DATE:** Jun, 1984

**PAGINATION:** 129p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Hca-138-88

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study was conducted to determine if soldiers assigned to amedd units with no formal physical training programs achieving the same level of physical fitness as soldiers assigned to amedd units with formal physical training programs. This study found that soldiers assigned to amedd units with formal physical fitness programs achieved statistically significant higher levels of physical fitness. The overall differences are attributable to specific differences in particular categories. Across all age and sex categories, soldiers with a formal program achieved better times in the two mile run. A formal pt program does not produce consistent, significantly higher sit-up and push-up results. Theses. (kt)

**DESCRIPTORS:**\*Physical Fitness,\*Medical Personnel, Army Personnel, Sex, Theses, Training.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A208301

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Annual Historical Report - Amedd Activities.

**REPORT DATE:**, 1988

**PAGINATION:** 108p Media Cost: \$ 11.00 Price Code: Ab

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The mission of the u.s. army research institute of environmental medicine is to conduct research on the effects of temperature, altitude, work and nutrition on the health and performance of the individual soldier and combat crews operating army systems. It assesses decrements to soldier or combat crew performance caused by the synergy of environmental extremes protective measures used in nbc sustained operations. It conducts research on the biomedical processes limiting physical performance to determine physical fitness requirements and seek solutions to medical problems related to physical training and exercise. It defines the complex interaction of environmental/operational stress and army systems and develops, evaluates and assists in the implementation of strategies designed to protect the soldier and enhance performance. In coordination with the natick research, development & engineering center (natick) and through liaison with other federal agencies, usariem conducts research to develop the technology base required to evaluate feeding strategies for operation rations and supplements to minimize soldier performance decrements under sustained combat conditions and discharge the army surgeon general's responsibilities as dod executive agent for nutrition. Assists natick in the development of personal clothing and equipment by assessing the physiological impact of these items under all climatic conditions. Keywords: altitude research, cold research, exercise physiology, heat research, ergonomics, military research.

**DESCRIPTORS:**\*Army Research,\*Military Medicine,\*Physical Fitness,\*Stress(Physiology), Altitude, Army, Army Equipment, Army Personnel, Climate, Combat Effectiveness, Crews, Degradation, Environmental Protection, Environments, Ergonomics, Executive Routines, Exercise(Physiology), Feeding, Health, Heat, Impact, Interactions, Low Temperature, Medicine, Military Research, Nutrition, Operation, Performance(Human), Physicians,

Physiology, Range(Extremes), Rations, Requirements, Solutions(General), Strategy, Surgery, Military Training, Warfare.

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A206551

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** The Epidemiology Of Physical Training Injuries In U.S. Army Infantry Trainees: Methodology, Population, And Risk Factors.

**PERSONAL AUTHORS:** Cowan, David; Jones, Bruce; Tomlinson, Pitt; Robinson, John; Polly, David

**REPORT DATE:** Nov, 1988

**PAGINATION:** 104p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Usariem-T-4-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This is a longitudinal study of the epidemiology of training associated injuries conducted among 303 men in u.s. army infantry one station unit training (osut) at fort benning, georgia. The goals of this study include: a detailed anthropometric and historic evaluation of the population; a detailed description of the types of morbidity occurring during training; measures of the incidence of injuries; and identification and quantification of risk factors for injury. The subjects were assessed for potential risk factors for injuries via questionnaire and physical measures prior to the onset of training. All injuries occurring during 13 weeks of osut were identified. Of the 303 subjects entered into the study, 139 (45.9%) suffered at least one injury resulting in a sick- call visit. These injuries resulted in 969 days of lost or modified training. One hundred twelve (37%) experienced at least one musculoskeletal injury to the lower back or lower extremities. One hundred seventy two separate musculoskeletal injuries were experienced at 147 sites. Among the army trainees, the sites and types of injury occurrence is generally similar in rank order to that reported in other studies, both civilian and military. This indicates that injuries being experienced among military trainees are of the same nature of those being experienced by other running populations. Keywords: physical training, training injuries, army infantry training, overuse injuries, physical fitness. (kt)

**DESCRIPTORS:**\*Army Training,\*Physical Fitness,\*Exercise(Physiology), Anthropometry, Army, Army Personnel, Epidemiology, Extremities, Georgia, Infantry, Musculoskeletal System, Population, Rank Order Statistics, Risk, Test And Evaluation, Trainees, Training, Wounds And Injuries.

**IDENTIFIERS:** Wu879, Pe62787a.

**FIELDS AND GROUPS:** 6/10, 15/1

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**AD NUMBER:** A206519

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Preventing Cold Injuries During Training, Competition, And Recreation,

**PERSONAL AUTHORS:** Armstrong, Lawrence E.; Hamlet, Murray P.

**REPORT DATE:** Dec 13, 1988

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M14-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This article reviews considerations for reducing the risk of cold injury for athletes and recreational participants. Recommendations are presented for precautionary measures which may be taken during training sessions, competition and recreational activities. Because of the journal involved, athletic populations are highlighted. Eight specific considerations are presented. Keywords: peripheral cold injuries, hypothermia, exercise, training, clothing, wind chill, physical fitness. (sdw)

**DESCRIPTORS:**\*Hypothermia,\*Exercise(Physiology),\*Stress(Physiology), Clothing, Low Temperature, Physical Fitness, Recreation, Training, Risk, Wind Chill, Wounds And Injuries.

**IDENTIFIERS:** Pe62787a, As879..

**FIELDS AND GROUPS:** 6/10, 6/4

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**AD NUMBER:** A206225

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** A Comparison Of The Meal, Ready-To-Eat, Ration, Cold Weather, And Ration, Lightweight Nutrient Intakes During Moderate Altitude Cold Weather Field Training Operations.

**PERSONAL AUTHORS:** Morgan, T. E.; Hodgess, L. A.; Schilling, D.; Hoyt, R. W.; Iwanyk, E. J.

**REPORT DATE:** Nov, 1988

**PAGINATION:** 152p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Usariem-T5-89

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** In January 1988, an 11-day field test comparing the improved meal, ready-to-eat (imre), the ration, cold weather (rcw), and the ration, lightweight (rlw) was conducted during the second two weeks of a six week marine mountain leaders course taught at the marine corps mountain warfare training center, bridgeport, ca. This testing site was selected because the environmental conditions and physical training regimen required substantial energy expenditures. Twenty-eight marines, including instructors, were separated into three groups and consumed one of three rations exclusively for 11 consecutive days. The first five days were spent in the field. Both the rcw and rlw groups were required to carry their entire rations (5 days) into the field while the imre group was resupplied in the field midweek. Food and water intakes, hydration status, body weight changes, blood chemistries, and ration acceptability were recorded. Although all three groups lost a significant amount of body weight (3.3-4.4%), the differences between groups were not significant. For these highly motivated, well equipped marines all three rations were adequate to sustain field operations for 11 days in this type of moderate altitude, cold weather environment. As has been seen in other field studies, soldiers consumed insufficient calories to maintain their body weight and the approximately 1500 kcal/day caloric deficit observed cautions against the use of these rations beyond 10-14 consecutive days under conditions of heavy physical activity. (sdw)

**DESCRIPTORS:**\*Military Rations, Acceptability, Army Personnel, Blood Chemistry, Body Weight, Cold Regions, Cold Weather, Comparison, Food, Instructors, Meals, Physical Fitness, Physical Properties, Marine Corps Training, Marine Corps Operations, Nutrients.



**IDENTIFIERS:** Pe63002d, As819.

**FIELDS AND GROUPS:** 6/8

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**AD NUMBER:** A204689

**CORPORATE AUTHOR:** School Of Aerospace Medicine Brooks AFB Tx

**UNCLASSIFIED TITLE:** Physical Fitness To Enhance Aircrew G Tolerance.

**PERSONAL AUTHORS:** Crisman, Ronald P.; Burton, Russell R.

**REPORT DATE:** Mar, 1988

**PAGINATION:** 60p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usafsam-Sr-88-1

**MONITOR ACRONYM:** NAMRL

**MONITOR SERIES:** 1334

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A physical fitness program of resistance training, such as weight lifting, directed toward increasing strength and anaerobic capacity will increase g-duration tolerance. This tolerance increase is particularly useful for usaf/usn pilots flying high-performance fighters during aerial combat maneuvers. A weight- training program including exercise equipment to be used by aviators to increase (and maintain this increase) their strength and anaerobic capacity is described. Aerobics conditioning with precautions and limitations for g tolerance is discussed. Figures show recommended weight-training exercises. Keywords: acceleration tolerance; stress physiology; exercise physiology; g tolerance, g- tolerance enhancement, g-induced loss of consciousness, physical conditioning, physical fitness, weight training, weight lifting, anaerobics, aerobics. (kt)

**DESCRIPTORS:**\*Acceleration Tolerance,\*Gravity,\*Flight Maneuvers,\*Stress(Physiology), Aerial Warfare, Anaerobic Processes, Capacity(Quantity), Exercise(Physiology), Fighter Aircraft, Performance(Engineering), Physical Fitness, Pilots, Resistance, Training, Weight.

**IDENTIFIERS:** Wuusafsam79301439, Pe62202f,\*G Tolerance.

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A201757

**CORPORATE AUTHOR:** Queen's Univ Kingston (Ontario) Ergonomics Research Lab

**UNCLASSIFIED TITLE:** Development Of Minimum Physical Fitness Standards For The Canadian Armed Forces. Phase 3,

**PERSONAL AUTHORS:** Stevenson, Joan M.; Andrew, George M.; Bryant, J. T.; Thomson, John M.; Swan, Robert D.

**REPORT DATE:** Mar, 1988

**PAGINATION:** 338p Media Cost: \$ 11.00 Price Code: Ad

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study was the third phase of a project to assist in the development of a set of minimum physical fitness standards which would be commensurate with performance of common military tasks. The specific purpose of this phase was to validate the minimum physical fitness standards for younger women and older men and to develop a standard for older women. In addition a sub-study was to examine the importance of the restriction of older subjects to 90% of their maximal capacity. With the permission of the cf, the common tasks were modified substantially in order to create one person simulated tasks that were

reliable. The tasks performed were operationally defined as: land evacuation, sea evacuation, low-high crawl, entrenchment dig and sand bag carry. The physical fitness tests selected for comparison included the expres test battery of sit-ups, push-ups, maximum grip strength and predictive oxygen consumption as well as laboratory measures of the incremental lifting machine test, flexed arm hang and endurance grip. The study was conducted at queen's university with 59 younger women, 28 older women and 62 older men tested over a three week period. Subjects were selected on the basis of oxygen consumption values from expres such that there was an equal number selected from each quartile of aerobic fitness. (sdw)

**DESCRIPTORS:**\*Military Forces(Foreign),\*Physical Fitness, Bags, Canada, Endurance(General), Evacuation, Hands, Laboratories, Land Areas, Oxygen Consumption, Sand, Standards, Strength(Physiology), Test Methods, Value, Women.

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A200667

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Incidence Of And Risk Factors For Injury And Illness Among Male And Female Army Basic Trainees.

**PERSONAL AUTHORS:** Jones, Bruce; Manikowski, Ronald; Harris, John; Dziados, Joseph; Norton, Scott

**REPORT DATE:** Jun, 1988

**PAGINATION:** 113p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Usariem-T19-88

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** To establish the incidence of and risk factors for training injuries and illness, 310 u.s. army trainees (124 men and 186 women) were followed prospectively through one basic combat training (bct) cycle of eight weeks duration. During bct 51% of females and 27% of males were injured. Females suffered 481 days of limited duty secondary to injury while males incurred 99 days of limited duty. For females slow mile time, low number of push ups and sit ups, high and low body mass index, and short and tall stature were associated with increased risk and injury during bct. For males slow mile time, high body mass index and low levels of previous physical activity were associated with increased risk for injury. When risk of injury for females versus males was adjusted for physical fitness there was no difference in risks between them. In regard to illness, 48% of females and 35% of males reported on sick call for an illness of some kind. However, if risks of illness were compared excluding gynecological complaints, the risks were 37% for females and 35% for males. Also 26% of females and 28% of males required medical care for an upper respiratory tract infection (uri). The total number of days of limited duty due to illness for females was 23 and for males 19, mostly secondary to upper respiratory tract infection. For females low level of prior physical activity was associated with increased risk of having an upper respiratory tract infection, while for males both slow mile times and low levels of prior activity were associated with risk of an upper respiratory tract infection. (sdw)

**DESCRIPTORS:**\*Army Training,\*Wounds And Injuries,\*Illness, Females, Indexes, Infectious Diseases, Jobs, Low Level, Males, Mass, Medical Services, Military Training, Physical Fitness, Physical Properties, Respiratory System, Risk, Trainees, Training, Warfare.

**IDENTIFIERS:** Pe62787a, Wu125, As879.

**FIELDS AND GROUPS:** 5/9, 6/4, 6/10

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**\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\***

**AD NUMBER:** A199932

**CORPORATE AUTHOR:** Walter Reed Army Inst Of Research Washington Dc

**UNCLASSIFIED TITLE:** Sickle-Cell Trait As A Risk Factor For Sudden Death In Physical Training,

**PERSONAL AUTHORS:** Kark, John A.; Posey, David M.; Schumacher, Harold R.; Ruehle, Charles J.

**REPORT DATE:** Sep 24, 1987

**PAGINATION:** 8p

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Case reports of sudden death during exertion have not established an association between the sickle-cell trait (hemoglobin as) and exercise-related death. To test this association, all deaths occurring among 2 million enlisted recruits during basic training in the u.s. armed forces in 1977 to 1981 were classified from autopsy and clinical records as non-sudden deaths or as sudden deaths explained or unexplained by preexisting disease. We conclude that recruits in basic training with the sickle-cell trait have a substantially increased, age dependent risk of exercise-related sudden death unexplained by any known preexisting cause. Reprints. (kt)

**DESCRIPTORS:**\*Clinical Medicine,\*Risk,\*Sickle Cell Anemia,\*Exercise(Physiology), Autopsy, Death, Enlisted Personnel, Hemoglobin, Military Training, Physical Fitness, Records, Recruits, Reports, Reprints, Training.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB IN NEW ENGLAND JNL. OF MEDICINE V317 P781-787, 24 SEP 87. NO COPIES FURNISHED BY DTIC/NTIS.

**FIELDS AND GROUPS:** 6/5, 6/10

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**AD NUMBER:** A196245

**CORPORATE AUTHOR:** Army Research Inst For The Behavioral And Social Sciences Alexandria Va

**UNCLASSIFIED TITLE:** Selection And Assessment Of Special Forces Qualification Course Candidates: Preliminary Issues.

**PERSONAL AUTHORS:** Pleban, Robert J.; Thompson, Thomas J.; Valentine, Patrick J.; Dewey, Gerald I.; Allentoff, Howard L.

**REPORT DATE:** Apr, 1988

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ari-Rn-88-37

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This research note seeks to provide a preliminary assessment of current methods of screening candidates for entry into the special forces qualification course (sfqc), and to examine the potential utility of alternative selection approaches. While the criteria for entry into the sfqc are extensive, they focus more on administrative issues and general training experience than on the qualities needed for success in the course, or on an operational detachment. No specialized selection program or battery is currently being used. Keywords: aptitude tests, physical fitness, intelligence(human), personality tests, army training,

attrition, jobs, special forces qualification course(sfqc), profile development, special forces, assessment, selection. (sdw)

**DESCRIPTORS:**\*Aptitude Tests,\*Army Training, Attrition, Personality Tests, Physical Fitness, Selection, Specialists, Unconventional Warfare.

**IDENTIFIERS:** Pe62722a, As791.

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A192697

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Behavioral, Psychological, And Demographic Predictors Of Physical Fitness.

**PERSONAL AUTHORS:** Conway, Terry L.

**REPORT DATE:** Dec 14, 1987

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-87-37

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Achieving higher levels of physical fitness has become a goal of many americans both for personal reasons (e.g., improved health, appearance, and perceived well-being) and for organizational reasons (e.g., corporate cost savings with healthy employees; operational readiness for the military services). Understanding the factors which relate to physical fitness could help people improve their fitness levels. This study examined 1,357 navy men to determine the associations between a variety of behavioral, psychological, and background factors and four components of physical fitness: (a) cardiorespiratory endurance (1. 5-mile run), (b) muscular endurance (sit-ups), (c) flexibility (sit- and-reach test), and (d) body composition (estimated percent body fat). After controlling for exercise activities, physical fitness was positively associated with wellness behaviors, believing in the importance of physical fitness, expecting to reach/maintain ideal weight, being athletic as a youth, and years of schooling; fitness was negatively associated with tobacco use, preventive/avoidance behaviors, age, and ever being overweight. Identifying such factors may help to structure better fitness programs tailored to the individual.

**DESCRIPTORS:**\*Behavior,\*Exercise(Physiology),\*Physical Fitness, Adipose Tissue, Avoidance, Background, Corporations, Costs, Demography, Endurance(General), Endurance(Physiology), Heart, Human Body, Military Forces(United States), Muscles, Operational Readiness, Predictions, Prevention, Respiratory System, Savings, Tobacco Plants, Weight, Youth, Tobacco Smoking, Prevention.

**FIELDS AND GROUPS:** 6/10, 5/8

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**AD NUMBER:** A190834

**CORPORATE AUTHOR:** Army Command And General Staff Coll Fort Leavenworth Ks  
School Of Advanced Mil Itary Studies

**UNCLASSIFIED TITLE:** Physical Training For The Modern Battlefield: Are We Tough Enough?

**PERSONAL AUTHORS:** Hertling, Mark P.

**REPORT DATE:** Nov 23, 1987

**PAGINATION:** 62p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The individual soldier's physical and mental preparation for battle are arguably two of the most important factors considered when deciding whether a force onset of fatigue and contributes to enhanced mental resolve of the force when committed. Does the centrally controlled, aerobic intensive, test oriented physical training program currently used by our army give us the best methods for preparing our soldiers for the eventuality of combat? This paper shows the implications of what is possible: it analyzes some of the physiological and psychological demands of combat, it investigates historical examples of commanders who, with a vision of how they would fight, properly prepared their units for the physical aspects of battles, and it outlines the current methods used by the ussr and the us in preparing their soldiers for the stresses of war. The conclusions address changes which must be made in our physical training programs if we are to meet the demands imposed by airland battle doctrine--training which is stressful, contingency related, and directed to readiness. Keywords: physical fitness, physical readiness, fear, fatigue, combat readiness, unit contingency training.

**DESCRIPTORS:**\*Physical Fitness,\*Army Training, Army Personnel, Battlefields, Battles, Combat Readiness, Fear, Mental Ability, Operational Readiness, Physical Properties, Preparation, Stresses, Training, Ussr, Vision, Warfare.

**FIELDS AND GROUPS:** 5/9, 6/5, 15/6

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**AD NUMBER:** A189303

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Validity Of The 500 Yard Swim And 5 Kilometer Stationary Cycle Ride As Indicators Of Aerobic Fitness.

**PERSONAL AUTHORS:** Buono, Michael J.

**REPORT DATE:** Oct 26, 1987

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** N66001-86-C-0254

**MONITOR ACRONYM:** NHRC

**MONITOR SERIES:** 87-27

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Two studies were performed, under contract, to determine the validity of including a 500-yard, swim or a 5- kilometer stationary cycle ride as an aerobic fitness measure in the navy's physical readiness test (prt). Participants in the swim test study were 60 college students (29 men and 31 women). Th aerobic fitness of each subject was determined from 1.5-mile run time and maximal oxygen uptake (vo2max). Swimming skill, percent body fat, and 500-yard swim time were also measured. Results showed swim time to be weakly correlated with both run time and vo20max ( $r = .44$  and  $-.32$  respectively). Swimming skill was the primary determinant of swim time ( $r = -.83$ ). In the second study, 20 college students (9 men and 11 women) performed a series of 5- kilometer rides on a stationary cycle ergometer for time. Maximum oxygen uptake and 1.5-mile run time were also measured. Cycle ride time was significantly correlated with both run time and vo20max ( $r = .94$  and  $-.72$  respectively). These results indicate that factors other than aerobic fitness (i.e., swimming skill) significantly affect 500-yard swim performance, and therefore, its validity as a measure of aerobic fitness has to be seriously questioned.

**DESCRIPTORS:**\*Physical Fitness,\*Swimming,\*Performance(Human),\*Exercise(Physiology), Adipose Tissue, Cycles, Ergometers, Indicators, Navy, Operational Readiness, Oxygen Consumption, Skills, Stationary, Time, Performance Tests, Naval Research.

**IDENTIFIERS:** Wudn477518, Wu1050, Pe63706n.

**FIELDS AND GROUPS:** 5/9, 6/10

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**AD NUMBER:** A188662

**CORPORATE AUTHOR:** Massachusetts Univ Amherst

**UNCLASSIFIED TITLE:** Anthropometric-Arm Radiogrammetric Assessment Of Body Composition, Muscularity And Frame Size.

**PERSONAL AUTHORS:** Katch, Frank I.; Behnke, Albert R.

**REPORT DATE:** Jun 01, 1983

**PAGINATION:** 88p Media Cost: \$ 6.00 Price Code: Aa

**CONTRACT NUMBER:** DAMD17-80-C-0108

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Research involves the validation of the arm x-ray procedure for quantifying total body fat in samples of young and older men and women grouped by fitness category. Tests were completed on 200 subjects. Body fat was determined densitometrically, fatfolds and girths were taken of the right upper arm according to procedures outlined on the phase 1 report ( ), and fitness was assessed by a treadmill test for maximal oxygen consumption (maxvo2). Subjects were placed into high and low fitness categories based on relative maxvo2. The validity correlations were high between body fat determined from the x-ray and body fat determined from body density in subjects grouped by relative fitness category. New k constants were developed specific to age and fitness. The results extend the usefulness of the arm x- ray procedure for quantifying total body fat in males and females of different ages and relative fitness category. The results are limited to caucasian subjects; the k constants would not be applicable to subjects who exhibit changes in body composition due to exercise or weight loss.

**DESCRIPTORS:**\*Anthropometry,\*Radiography,\*Arms(Anatomy), Adipose Tissue, Correlation, Density, Females, Frames, Human Body, Males, Oxygen Consumption, Sizes(Dimensions), Treadmills, Validation, Weight Reduction, Women, Exercise(Physiology), Musculoskeletal System, X Ray Photography, Physical Fitness.

**IDENTIFIERS:** Pe62777a, As879, Wu083.

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A188010

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Development Of A Coping Strategies Questionnaire To Assess Endurance Performance,

**PERSONAL AUTHORS:** Tharion, William J.; Terry, Alyssa L.

**REPORT DATE:** Oct 16, 1987

**PAGINATION:** 7p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to develop a questionnaire to assess coping strategies employed to help combat the physical and psychological stress associated with

endurance activities. When assessing the performance of two individuals trained similarly for a sustained operation (an operation lasting longer than six hours) or other endurance related tasks, a question that often arises is 'why is one individual able to complete the mission or task while his similarly trained partner is unable to do so?' this question is also frequently examined in the athletic arena, especially for long endurance events. In all of these cases, psychological explanations are often given to explain why one individual is able to successfully cope with the demands of the activity and finish it, while another individual is not able to. Understanding how successful soldiers and athletes cope with the stresses involved in endurance events should allow for a better understanding of superior performance.

**DESCRIPTORS:** \*Stress(Physiology), \*Performance(Human), \*Physical Fitness, Endurance(General), Long Range(Time), Questionnaires, Strategy, Stresses, Stress(Psychology), Individualized Training, Survival(Personnel), Casualties.

**IDENTIFIERS:** Pe61102a, Ass15.

**FIELDS AND GROUPS:** 6/10, 5/8

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**AD NUMBER:** A186454

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** The Use Of Heart Rate In The Prescription And Evaluation Of Exercise Programs,

**PERSONAL AUTHORS:** Hoyt, Reed W.

**REPORT DATE:** May 17, 1987

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The direct measurement of maximal oxygen uptake (vo2max) during exercise to exhaustion provides a scientifically rigorous means of comparing the aerobic capacities of different individuals and of assessing the effects of endurance training on cardiorespiratory fitness. However, the complexity and expense of this approach has led to the development of simpler techniques designed to achieve the same ends. After a brief description of a maximal exercise test which can be used to compare the cardiorespiratory fitness of different individuals this paper will discuss in detail how to use the heart rate response to standardized exercise to monitor the effects of endurance training to the relative fitness of an individual.

**DESCRIPTORS:** \*Aerobic Processes, \*Cardiology, \*Exercise(Physiology), \*Heart Rate, \*Physical Fitness, \*Endurance(Physiology), Costs, Endurance(General), Fatigue(Physiology), Measurement, Oxygen Consumption, Respiratory System, Response(Biology), Standardization, Training, Cardiovascular System, Intensity.

**FIELDS AND GROUPS:** 6/4

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\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\*

**AD NUMBER:** A185529

**CORPORATE AUTHOR:** Army Personnel Research Establishment Farnborough (England)

**UNCLASSIFIED TITLE:** Upper And Lower Body Anaerobic Power: Comparison Between Biathletes And Control Subjects,

**PERSONAL AUTHORS:** Patton, J. F.; Duggan, A.

**REPORT DATE:** Apr, 1987

**PAGINATION:** 6p

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study compared power outputs (po) from both the upper body (ub) and lower body (lb) wingate tests of anaerobic power between biathletes and control subjects. Ten biathletes (b) selected by the british ski federation for potential assignment to the british team and 13 control (c) subjects cranked or pedaled the same bodyguard ergometer at maximal rpms for 30s against resistances of 2.94 and 4.41 j/rev/kg body weight (bw), respectively. The data shows that significant differences exist in the anaerobic performance of aerobically trained athletes compared with subjects who are not highly trained and that these differences are reflected in the musculature of the ub as well as the legs. Keywords: anaerobic power, wingate test, biathlete, aerobic power, exercise, reprints.

**DESCRIPTORS:** \*Aerobic Processes, \*Physical

Fitness, \*Strength(Physiology), \*Endurance(Physiology), Anaerobic Processes, Ergometers, Great Britain, Legs, Muscles, Output, Power, Power Supplies, Reprints, Skis, Teams(Personnel), Human Body.

**IDENTIFIERS:** Upper Body, Lower Body, Wingate Test, Athletes, Biathletes.

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN INTERNATIONAL JNL. OF SPORTS MEDICINE, V8 N2 P94-98 APR 87. NO COPIES FURNISHED BY DTIC/ NTIS.

**FIELDS AND GROUPS:** 6/4, 6/10

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**AD NUMBER:** A185473

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** The Effects Of Various Physical Training Programs On Short Duration, High Intensity Load Bearing Performance And The Army Physical Fitness Test.

**PERSONAL AUTHORS:** Kraemer, William J.; Vogel, James A.; Patton, John F.; Dziados, Joseph E.; Reynolds, Katy L.

**REPORT DATE:** Aug, 1987

**PAGINATION:** 32p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-30/87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to contrast the effects of different physical training programs on short duration, high intensity load bearing performance and army physical fitness test (apft) scores. Thirty-five soldiers were randomly assigned to one of four training groups: group a, upper and lower body resistance training and high intensity endurance training (heit) which included interval training; group b, upper body resistance training and heit; group c, upper and lower body resistance training only; group d, heit only. Training took place four times per week (m,t,th, f) for 12 weeks. Pre- and post-training measures were obtained for a two mile load bearing task with a total load of 44.67 kgs. Apft was administered at the pre-, mid-, and post-training time points. The results demonstrate that only group a and group b made significant ( $p < 0.05$ ) improvements in the load bearing performance task. Groups a, b, and d improved all components of their apft scores while group c improved in push ups and sit ups only. The results of this study suggest that a combination of running and resistance training is necessary to improve short duration, high intensity load bearing performance. Keywords: load bearing, physical training, physical performance, muscle strength, aerobic capacity, exercise, performance(human).



**DESCRIPTORS:** \*Aerobic Processes, \*Physical Fitness, \*Army Training, Army Equipment, Capacity(Quantity), Endurance(General), Intervals, Loads(Forces), Muscles, Performance(Engineering), Performance(Human), Resistance, Short Range(Time), Strength(Physiology), Supports, Test Methods, Training, Endurance(Physiology), Weight, Load Distribution.

**IDENTIFIERS:** Load Carrying, \*Load Bearing, As879, Pe62777a, Wu125.

**FIELDS AND GROUPS:** 5/9, 6/10

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**AD NUMBER:** A185015

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** The Psychological Attributes Of Ultramarathon Runners And Factors Which Limit Endurance.

**PERSONAL AUTHORS:** Tharion, W. J.; Raunch, T. M.; Strowman, S. R.; Shikitt, B. L.

**REPORT DATE:** Apr 30, 1987

**PAGINATION:** 42p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-21-87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Psychological and training characteristics of 44 ultramarathoners competing in a 50-mile trail race were studied. These psychological and training variables were used to distinguish differences between survivors and casualties in the race and to predict race time. In addition, mood changes and runners' physical symptoms were examined to assess changes from pre to post-race. Results show a mood profile and self-motivation scores similar to other athletic populations. Mood profile changed from pre to post race and training pace was found to be a highly significant factor in predicting finish time.

**DESCRIPTORS:** \*Military Training, \*Exercise(Physiology), \*Psychophysiology, \*Physical Fitness, Tolerances(Physiology), Motivation, Casualties, Survival(Personnel).

**IDENTIFIERS:** Runners, Ultramarathon, Ultramarathon, Symptomatology, Moods, Pe61101a, As91c, Wuda308410.

**FIELDS AND GROUPS:** 6/10, 5/8, 5/9

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**AD NUMBER:** A185008

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Physical Fitness And Physical Performance During Continuous Field Artillery Operations.

**PERSONAL AUTHORS:** Patton, John F.; Vogel, James A.; Damokosh, Andrew I.; Mello, Robert P.

**REPORT DATE:** Apr, 1987

**PAGINATION:** 42p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-9-87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purposes of this study were to 1) determine the effects of a continuous field artillery scenario on physical fitness capacity and performance, 2) relate physical capacity to task performance during the scenario, and 3) estimate the physical intensity of the scenario by continuous heart rate monitoring. Twenty-four artillerymen comprising three, 8-man guncrews participated in an 8-day, combat-simulated operation. Body composition

and measures of fitness (isokinetic strength of the arms and legs, isometric handgrip strength, dynamic lifting, and upper body anaerobic power) were determined before and immediately following the scenario. Physical performance was assessed by daily ratings from senior noncommissioned officers experienced in artillery operations. The intensity of physical activity and amount of sleep were estimated from continuously recorded heart rate using oxford medilog electrocardiographic tape recorders worn by the soldiers. The results suggest that 1) soldiers who are allowed 5 hrs sleep per day and who are required to perform at capacity or evidence of physical fatigue for up to 8 days of continuous operations, 2) the physical fitness of artillerymen was comparable to other army populations of similar age and proved adequate to meet the physical demands of this scenario, and 3) soldiers undergoing realistic, continuous field artillery operations are able to obtain adequate sleep and spend only short periods at high levels of physical activity.

**DESCRIPTORS:** \*Combat Effectiveness, \*Performance(Human), \*Physical Fitness, Simulation, Artillery Units, Heart Rate, Strength(Physiology), Fatigue(Physiology), Military Operations, Military Personnel, Sleep.

**IDENTIFIERS:** Combat Simulation.

**FIELDS AND GROUPS:** 5/9, 15/6

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**AD NUMBER:** A184834

**CORPORATE AUTHOR:** Advisory Group For Aerospace Research And Development Neuilly-Sur-Seine (Fran Ce)

**UNCLASSIFIED TITLE:** The Practical Assessment Of Pilot Workload: Flight Mechanics Panel Of Agard,

**PERSONAL AUTHORS:** Roscoe, Alan H.

**REPORT DATE:** Jun, 1987

**PAGINATION:** 142p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Agard-Ag-282

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** For Sales Information Of Individual Items See AD-P005 629 - AD-P005 643. Text In English And French.

**ABSTRACT:** In the introduction to that earlier agardograph it was suggested that it may be useful to consider workload as a multi- faceted concept, primary facets being formed by the three variables: demands of the flight task, pilot effort, and results. Minor or secondary facets can then be formed by the various methods used for assessing levels of workload. These will be largely dependent on the experience, discipline, and interest of the investigator . In 1982 o'donnell defined workload as ...an hypothetical construct which conveniently describes the interactions between multiple factors affecting the operator's response in an operational system . He went on to point out that ...such a broad and incomplete definition has value only if the factors underlying them can be identified, and if metrics to assess these factors can be specified o'donnell identified three broad categories of factors which contribute to workload, namely: taskload, operator variables, and response. Hart referred to workload being a subjective experience resulting from a combination of several different dimensions; the three main dimensions being task-related, pilot-related, and outcome-related. Nineteen components of these main dimensions were to nine dimensions worth examining in detail when studying total workload: task difficulty, time

pressure, own performance, mental effort, physical effort, frustration, stress, fatigue, and activity type.

**DESCRIPTORS:**\*Pilots,\*Workload,\*Performance(Human), Work Measurement, Flight Crews, Man Machine Systems, Flight Maneuvers, Workshops, Flight Training, Physical Fitness, Mental Ability, Operators(Personnel), Human Factors Engineering, Stress(Physiology), Fatigue(Physiology).

**IDENTIFIERS:** Nato Furnished, Compilation Reports.

**FIELDS AND GROUPS:** 5/9, 23/2

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**AD NUMBER:** A183016

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Is The Navy Attracting Or Creating Smokers?

**PERSONAL AUTHORS:** Cronan,Terry A. ;Conway,Terry L. ;

**REPORT DATE:** Mar 20, 1987

**PAGINATION:** 14p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-87-6

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to examine whether the navy is attracting smokers or creating smokers once individuals join the navy. The results indicated that the navy is not attracting a higher than expected percentage of smokers from the u. S. Population. Rather, many men start to smoke after they enter the navy. These findings suggest that the navy should implement strong prevention programs in recruit training. There were also large numbers of ex-smokers in the shipboard sample, which demonstrates that men in the navy can and do quit smoking. Thus, the navy should also develop effective smoking cessation programs for people who smoke. Effective smoking prevention and cessation programs should decrease health care costs, increase productivity, increase physical fitness, and produce a healthier and fitter force.

**DESCRIPTORS:**\*Tobacco Smoking,\*Naval Personnel, Costs, Health, Population, Productivity, Smoke, Physical Fitness, Prevention, Recruits, Naval Training

**FIELDS AND GROUPS:** 6/11, 5/9

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**AD NUMBER:** A182680

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Changes In Fitness And Shipboard Task Performance Following Circuit Weight Training Programs Featuring Continuous Or Interval Running,

**PERSONAL AUTHORS:** Marcinik,Edward J. ;Hodgdon,James A. ;Englund, Carl E. ;O'brien,J. J. ;

**REPORT DATE:**, 1987

**PAGINATION:** 8p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrc-85-33

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In European Jnl. Of Applied Physiology, V56 P132-137 1987. Supersedes Report Dated Aug 85, AD-A163 110.

**ABSTRACT:** This investigation compared fitness and work performance changes following participating in circuit weight training regimes featuring either interval or continuous

running programs. Results indicated that participation in the circuit weight training/run regimes was associated with differential changes in fitness but not shipboard work performance. Furthermore, the association between training included fitness gains and relative improvement in job performance appeared to be specific to the task modeled. Important predictors of criterion job performance included measures of both upper and lower torso muscular strength. Regression analyses yielded the following prediction equation: composite shipboard performance(s) = 194.15097-1.59492 (arm curl) -. 18369 (leg press) r =0.174. Keywords: physical fitness, muscular strength, interval running, continuous running, circuit weight training, reprints.

**DESCRIPTORS:**\*Performance(Human),\*Physical Fitness,\*Naval Training, Circuits, Training, Weight, Jobs, Muscles, Strength(General), Equations, Predictions, Regression Analysis, Shipboard, Work, Intervals, Reprints, Exercise(Physiology)

**IDENTIFIERS:** Pe63706n, Wu1050, Wudn477518

**FIELDS AND GROUPS:** 6/4, 5/9

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**AD NUMBER:** A182375

**CORPORATE AUTHOR:** Air Command And Staff Coll Maxwell AFB Al

**UNCLASSIFIED TITLE:** Birth Order And The Aviator.

**PERSONAL AUTHORS:** Hertsgaard,Barry C. ;

**REPORT DATE:** Feb 17, 1987

**PAGINATION:** 15p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Acsc-87-1180

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This report conducts limited exploratory research into the possible relationship between birth order and an above average aptitude for aviation training. It reviews some of the basic elements of the science of ethology, birth order traits and possible correlations to military aviators. The study concludes that actual research into the navy and air force aviator populations should be conducted to establish what, if any, relationship exists. Improved selection criteria might be established.

**DESCRIPTORS:**\*Birth,\*Aviation Personnel,\*Behavior,\*Individualized Training, Skills, Pilots, Population, Correlation, Military Personnel, Aeronautics, Selection, Flight Training, Physical Fitness, Air Force Personnel, Naval Aviation, Naval Personnel

**FIELDS AND GROUPS:** 5/9, 5/8

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**AD NUMBER:** A182274

**CORPORATE AUTHOR:** Army Research Inst For The Behavioral And Social Sciences  
Alexandria Va

**UNCLASSIFIED TITLE:** Exit Survey Of First-Term Enlisted Analyzed For Gender, Type Of Separation, Mos (Military Occupational Specialty) Traditionality, And Mos Physical Demands.

**PERSONAL AUTHORS:** Nogami,Glenda Y. ;Varty,John F. ;Ross,Robert M. ; Gade,Paul A. ;

**REPORT DATE:** Apr, 1987

**PAGINATION:** 695p Media Cost: \$ 41.00 Price Code: Ag

**REPORT NUMBER:** Ari-Rp-87-17

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Between september and december 1983, 3,938 first-term enlisted soldiers properly completed an exit survey as they separated from the army. This report presents the data from the entire survey on demographic characteristics, economic concerns and attitudes. The crosstabulations are in four sets: (1) gender, (2) separation categories (attrition categories and (expiration of term of service (ets)), (3) military occupational specialties (mos) traditionality, and (4) mos physical demands categories mepscat (military entrance physical strength capacity test). Keywords: job physical demands, gender, personnel retention, reenlistment.

**DESCRIPTORS:**\*Job Analysis,\*Enlisted Personnel,\*Army Personnel, Attrition, Exits, Surveys, Jobs, Military Personnel, Specialization, Demography, Personnel Retention, Reenlistment, Separation, Economics, Attitudes(Psychology), Strength(Physiology), Job Satisfaction, Physical Fitness, Behavior

**IDENTIFIERS:** Mos(Military Occupational Specialists), Gender, As791, Pe62722a

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A181444

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Relationship Of Anaerobic Power Capacity To Performance During A 5-Day Sustained Combat Scenario,

**PERSONAL AUTHORS:** Murphy,Michelle M. ;Knapik,Joseph J. ;Vogel,James A. ;Drews,Fred R. ;

**REPORT DATE:** Jun, 1984

**PAGINATION:** 36p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-5/84

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Anaerobic power capacity was assessed on 34 infantrymen before and after a five-day combat scenario. The objective of this study was to determine the importance of this fitness component with the ability to perform field infantry tasks. Anaerobic performance was assessed for the upper and lower body muscle groups using the wingate test (wt). The isokinetic endurance test (iet) was administered to assess anaerobic capacity of the elbow and knee extensor muscles. This test utilized the cybex dynamometer. Upper body muscularendurance as assessed by anaerobic power capacity may play an important role in the ability to sustain infantry tasks over 5 days.

**DESCRIPTORS:**\*Anaerobic

Processes,\*Endurance(Physiology),\*Performance(Human),\*Stress(Physiology), Endurance(General), Infantry, Kinetics, Muscles, Power, Physical Fitness, Simulation, Human Body

**IDENTIFIERS:** Pe62777a, As879, Combat

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A180160

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Smoking And Physical Fitness Among Navy Shipboard Personnel.

**PERSONAL AUTHORS:** Conway,Terry L. ;Cronan,Terry A. ;

**REPORT DATE:** Dec 11, 1986

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nhrcs-86-33

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to examine smoking prevalence in a large group of navy men and to assess the impact of smoking on their physical fitness. Self-reported demographic and smoking information was provided by 1,357 navy men stationed aboard ships in the san diego area. Physical fitness was measured as performance on the navy's annual physical readiness test which includes a 1.5-mile run/walk, 2-minute sit-ups test, sit-reach flexibility test, and percent body fat assessment. Self-reported smoking status indicated that 49.8% were current smokers, 20.3% were former smokers, and 29.9% had never smoked. Smokers were more likely to be non-black enlisted personnel with lower education who had been in the navy longer and tended to be older. Smoking also had a clear negative impact on physical fitness, most notably on cardiorespiratory endurance (1.5-mile run performance) and muscular endurance (sit-ups test). Study results suggest that the navy's anti-smoking efforts should focus heavily on prevention. Men who had never smoked were leaner, could do more sit-ups, and scored higher on the overall physical fitness rating than current smokers and former smokers. Strong efforts to get people to stop smoking should also improve cardiorespiratory and muscular endurance as former smokers performed better on the 1.5-mile run and sit-ups tests than current smokers. Future research should focus on why smoking rates in the navy are so high. Identification of factors associated with smoking would provide useful information for developing interventions to lower smoking rates. Successful interventions are vitally needed to help the navy reach its goals for maintaining a healthy and fit force.

**DESCRIPTORS:**\*Physical Fitness,\*Tobacco Smoking, Adipose Tissue, Education, Endurance(General), Endurance(Physiology), Heart, Identification, Males, Muscles, Naval Personnel, Naval Vessels, Respiratory System, Shipboard

**IDENTIFIERS:** Wu1050, Pe62706n

**FIELDS AND GROUPS:** 5/9, 6/10

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**AD NUMBER:** A179985

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Maximal Aerobic Capacity For Repetitive Lifting: Comparison With Three Standard Exercise Testing Modes,

**PERSONAL AUTHORS:** Sharp, M. A.; Harman, E.; Vogel, J. A.; Knapik, J. J.; Legg, S. J.

**REPORT DATE:** Feb 12, 1987

**PAGINATION:** 32p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to develop a reliable multi-stage repetitive lifting vo2max test to be used as a laboratory tool, which paralleled standard ergometer vo2max testing procedures. A secondary purpose was to compare the repetitive lifting vo2max test responses to those obtained during treadmill, cycle ergometer and arm crank ergometer tests utilizing similar testing procedures. The economy of maximal and submaximal repetitive lifting exercise was examined and compared to that of leg cycling and arm cranking. Keywords: oxygen uptake; work efficiency; exercise.

**DESCRIPTORS:**\*Exercise(Physiology),\*Physical Fitness, Aerobic Processes,  
Capacity(Quantity), Cycles, Efficiency, Ergometers, Laboratories, Lift, Oxygen  
Consumption, Tools, Work, Arms(Anatomy), Legs.

**FIELDS AND GROUPS:** 6/10, 6/4

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**\*\*\*DTIC DOES NOT HAVE THIS ITEM\*\*\***

**AD NUMBER:** A179662

**CORPORATE AUTHOR:** Army Personnel Research Establishment Farnborough (England)

**UNCLASSIFIED TITLE:** An Evaluation Of Tests Of Anaerobic Power,

**PERSONAL AUTHORS:** Patton,John F. ;Duggan,Andrew ;

**REPORT DATE:** Mar, 1987

**PAGINATION:** 6p

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The objectives of this study were to examine the relationships between two recently developed laboratory tests of anaerobic power (anp) and to compare these tests to other measures of anp. Fifteen male subjects, aged 20-34 years, performed: a 30-s maximal cycle ergometer test (wingate test), a 60-s isokinetic knee extension test (isokinetic endurance test), a 50-m sprint, a 200-m sprint, and the margaria stair-climb test. Significant correlations ranging from 0.52-0.76 were found between the wingate and isokinetic endurance tests for peak and mean values of power and torque, respectively. Indices from both these tests also correlated significantly with the other tests of anp. The best single index was mean power from the wingate test, which had correlations of -0.79, -0.82, and 0.74 with the 50-m and 200-m sprint times and the margaria test, respectively. The data suggest that both the wingate and isokinetic endurance tests represent valid laboratory tests for evaluating high-intensity, short-term exercise in which the muscle is primarily dependent upon anaerobic processes for energy release. (reprints).

**DESCRIPTORS:**\*Anaerobic Processes,\*Exercise(Physiology),\*Physical Fitness,\*Endurance(Physiology), Energy Transfer, Ergometers, Indexes, Kinetics, Laboratory Tests, Mean, Power, Reprints, Short Range(Time), Test Methods, Torque, Cyclic Tests, Muscles, Contraction

**LIMITATIONS (ALPHA):** AVAILABILITY: PUB. IN AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE, P237-242 MAR 87. (NO COPIES FURNISHED BY DTIC/NTIS).

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A179105

**CORPORATE AUTHOR:** Army Training And Doctrine Command Fort Monroe Va

**UNCLASSIFIED TITLE:** Utility Of Demographic And Psychological Measures For The Prediction Of Army Separation.

**PERSONAL AUTHORS:** Tate,Marlene M. ;

**REPORT DATE:** Nov, 1986

**PAGINATION:** 103p Media Cost: \$ 11.00 Price Code: Ab

**MONITOR ACRONYM:** SBI

**MONITOR SERIES:** AD-F000 097

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Doctoral Thesis.

**ABSTRACT:** The purpose of the investigation was to analyze the ability of a combination of physical measures, psychological measures and demographic information to predict separation from the army over the period of time defined as entry level status. A secondary purpose was to analyze the relationship of the variables with the type of separation. It is important to attempt to identify the causes of recruit attrition during training so that procedures for decreasing this attrition can be developed and implemented. In view of the finding and conclusion presented, recommendations were made. The recommendations stated that the psychological constructs used should be considered for inclusion in the new tests for the prediction of attrition and further study

**DESCRIPTORS:** \*Military Separation, \*Army Training, \*Recruits, \*Attrition, Statistical Analysis, Volunteers, Military Forces(United States), Army Personnel, Males, Females, Military Personnel, Methodology, Variables, Motivation, Statistics, Trainees, Mental Ability, Stress(Physiology), Stress(Psychology), Physical Fitness

**IDENTIFIERS:** All Volunteer Force, Gates Commission, Afqt(Armed Forces Qualification Test), Els(Entry Level Separation), Tdp(Trainee Discharge Program), Basic Training, Epts(Existing Prior To Service)

**FIELDS AND GROUPS:** 5/6, 5/8

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**AD NUMBER:** A179087

**CORPORATE AUTHOR:** School Of Aerospace Medicine Brooks AFB Tx

**UNCLASSIFIED TITLE:** Physical Fitness Status Of Usaf Firefighters.

**PERSONAL AUTHORS:** Myhre,L. G. ;Kirk,G. V. ;Walker,J. L. ;Grimm,W. ; Campbell,P. ;

**REPORT DATE:** Sep, 1986

**PAGINATION:** 18p Media Cost: \$ 6.00 Price Code: Aa

**MONITOR ACRONYM:** AFESC/ESL

**MONITOR SERIES:** TR-86-05

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A project was initiated to determine the metabolic costs of performing selected usaf firefighting activities to (1) collect data representative of the workloads imposed on usaf firefighters, and (2) develop valid laboratory protocols to simulate the physical stresses of firefighting activities. These protocols could then be used to evaluate firefighter protective equipment, e.g., self-contained breathing apparatus and the entire firefighter protective ensemble, under simulated field conditions. Keywords: aerobic capacity; cycle ergometer; cardiometer; body fat; stress; protective clothing.

**DESCRIPTORS:** \*Fire Fighting, \*Physical Fitness, \*Endurance(Physiology), \*Air Force Personnel, Aerobic Processes, Cycles, Ergometers, Costs, Metabolism, Protective Clothing, Field Conditions, Simulation, Adipose Tissue, Breathing Apparatus, Self Contained, Workload, Stress(Physiology), Cardiometry

**FIELDS AND GROUPS:** 6/10, 23/4

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**AD NUMBER:** A178835

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Mechanisms Of Bioenergetic Homeostasis During Exercise: A General Model,



**PERSONAL AUTHORS:** Gray, Charles G. ;Phillips, Robert W. ;Tumbleson, M. E. ;

**REPORT DATE:**, 1986

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Navhltthrschc-85-19

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In Swine In Biomedical Research, V1 P515-532 1986.

Supersedes Report Dated May 85, AD-A161 678.

**ABSTRACT:** Studies over the past several years have identified limitations of substrate utilization as a primary determinant of physical endurance capacity. These studies have shown that muscles have a preference and a great capacity to utilize fats as a source of energy. However, the preponderance of these studies have been directed at extending endurance by increasing glucose availability through increasing muscle glycogen stores, or supplementing endogenous glucose supplies during exercise with various forms of sugar containing solutions. Some studies have shown that oral administration of glucose solutions during exercise can improve performance, while pre-feeding with glucose decreases endurance performance. However, physical training and adaptation to low carbohydrate diets drive the system toward greater fatty acid oxidation during exercise. The main problem appears to be integration of the observed effects of training and dietary manipulation into a comprehensive solution for maximizing physical endurance under a variety of circumstances. Keywords: metabolism; exercise (physiology); endurance (physiology); homeostasis; adipose tissue.

**DESCRIPTORS:**\*Homeostasis,\*Exercise(Physiology),\*Endurance(Physiology),\*Metabolism,\*Physical Fitness, Solutions(General), Fats, Models, Availability, Glucose, Limitations, Substrates, Utilization, Training, Endurance(General), Fatty Acids, Oxidation, Diet, Carbohydrate Metabolism, Lipid Metabolism, Swine, Sources, Physiology, Reprints

**IDENTIFIERS:** Pe61152n, Wu6031

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A178430

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Effect Of Aerobic Training On The Plasma Acth Response To Exercise.

**PERSONAL AUTHORS:** Buono, Michael J. ;Yeager, John E. ;Sucec, Anthony A. ;

**REPORT DATE:** Sep 01, 1986

**PAGINATION:** 9p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Navhltthrschc-86-28

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this study was to re-examine the effect of training on plasma acth levels during exercise. Ten adult volunteers were split into a control and an experimental group. The experimental group participated in a 12-week training program which resulted in a significant 11% increase in their mean maximal oxygen uptake. The plasma acth response to a 150w workload was measured in both groups before and after the training program. The experimental group demonstrated a significant reduction in the delta acth response to the workload, while the control group demonstrated an unchanged response over the course of the study. These data suggest that the acth response to an absolute, submaximal workload is blunted following training. Such a finding is in agreement with

previous studies that have shown that acth follows an intensity dependent pattern during exercise. Keywords: exertion; cycle ergometry; adrenocorticotropin.

**DESCRIPTORS:**\*Adrenocorticotrophic Hormone,\*Exercise(Physiology), Adults, Aerobic Processes, Blood Plasma, Control, Cycles, Ergometers, Intensity, Level(Quantity), Oxygen Consumption, Patterns, Plasmas(Physics), Response, Training, Volunteers, Workload, Physical Fitness, Reprints

**IDENTIFIERS:** Wuda307899, Pe63764a

**FIELDS AND GROUPS:** 5/6, 5/9, 6/10

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**AD NUMBER:** A177564

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Psychological Factors Associated With Performance In The Ultramarathon.

**PERSONAL AUTHORS:** Rauch,T. M. ;Tharion,W. J. ;Strowman,S. R. ; Shukitt,B. L. ;

**REPORT DATE:** Dec 30, 1986

**PAGINATION:** 39p Media Cost: \$ 6.00 Price Code: Aa

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Psychological and training characteristics of 44 ultramarathoners competing in a 50-mile trail race were studied. These psychological and training variables were used to distinguish differences between survivors and casualties in the race and to predict race time. In addition, mood changes and runners physical symptoms were examined to assess changes from pre to post-race. Results show a mood profile and self-motivation scores similar to other athletic populations. Mood profile changed from pre to post race and training pace was found to be a highly significant factor in predicting finish time. Keywords: symptomatology, moods, psychological, attributes, endurance training.

**DESCRIPTORS:**\*Army Training,\*Exercise(Physiology),\*Physical Fitness, Attitudes(Psychology), Casualties, Signs And Symptoms, Psychology, Training, Variables, Training

**IDENTIFIERS:** Sympomatology, Moods, Ultramarathon, Pe66119a, Asa91, Wu439

**FIELDS AND GROUPS:** 5/6, 5/9, 6/10

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**AD NUMBER:** A174924

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Musculoskeletal Injury: Risks Prevention And First Aid,

**PERSONAL AUTHORS:** Jones, Bruce H.; Rock, Paul B.; Moore, Michael P.

**REPORT DATE:** Sep 08, 1986

**PAGINATION:** 26p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M-8-87

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This document concludes that most training injuries result from inappropriate intensity, duration or frequency of activity for the existing intrinsic condition of the participant or the extrinsic environmental conditions. The use of good judgement and moderation may be sufficient to prevent the majority of exercise related injuries. Training routines should be based on an objective assessment of the individual's physical fitness level and other susceptibility (risk) factors. Periodic re-evaluation of training should be

conducted, especially if warning signs of injury such as pain, dysfunction, or decreased performance occur. If these measures fail to prevent injury, prompt first aid should be instituted. Finally, medical attention should be sought whenever the severity of injury merits it or if there is a doubt as to the need for professional medical intervention.

**DESCRIPTORS:**\*Prevention,\*Wounds And Injuries,\*Musculoskeletal System,\*First Aid, Medical Services, Signs And Symptoms, Intervention, Medicine, Pain, Training, Exercise(Physiology), Physical Fitness, Risk.

**FIELDS AND GROUPS:** 5/9, 6/5

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**AD NUMBER:** A174843

**CORPORATE AUTHOR:** Australian Military Forces Canberra Psychological Research Unit (1)

**UNCLASSIFIED TITLE:** A Comparison Of Two Task Rating Scales Of Physical Demand.

**PERSONAL AUTHORS:** Collyer,Robert S. ;

**REPORT DATE:** Aug, 1986

**PAGINATION:** 27p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Rr-3/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Presented At The Annual Conference Of The Australian Psychological Society (21st), 25-29 Aug 86.

**ABSTRACT:** Task analysis to specify the physical demands of work is expensive in terms of manpower skills, equipment, and time. Job analysis methods to identify tasks that should be subject to detailed task analysis are an important part of any strategy to specify physical demands criteria for jobs. This paper reports research comparing two sets of task inventory rating scales used to identify important, physically demanding tasks. The physical demand scales are perceived physical effort, which is part of physical abilities analysis, and physical strength and endurance, a scale developed by the us air force. Two scales assessing consequences of inadequate performance were also used. The scales were administered to large samples from two australian army employment groups. Scale reliabilities and task rand order intercorrelations are reported and implications for the scales' future use are discussed.

**DESCRIPTORS:**\*Job Analysis,\*Physical Fitness, Air Force, Australia, Endurance(General), Inventory, Manpower, Physical Properties, Ratings, Sampling, Scale, Skills, Strength(Physiology), Endurance(Physiology)

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A174589

**CORPORATE AUTHOR:** Air Force Inst Of Tech Wright-Patterson AFB Oh School Of Systems And Logistics

**UNCLASSIFIED TITLE:** The Perception Of Pregnancy Among Enlisted Work Group Members.

**PERSONAL AUTHORS:** Munley,Judyann L. ;

**REPORT DATE:** Sep, 1986

**PAGINATION:** 115p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Afit/Glm/Lsb/86s-53

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This thesis examined how 11,847 air force enlisted work group members stationed at 30 bases throughout the world perceived pregnant co-workers. As a framework it used terence r. Mitchell's model for understanding group behavior. Individual differences, characteristics of group structure, and situational factors were examined in relation to the perception of pregnancy as a problem. Analyses were accomplished using data extracted from the air force survey of work groups prepared for the united states air force by the national opinion research center, and systems research and applications corporation. Analyses indicated only 15.5 percent of the sample perceived pregnancy as a problem; less than 10 percent of the sample indicated pregnant women do not carry their own weight on the job. There was no difference between how males and females perceived pregnant co-workers. The data indicated pregnancy was perceived to be more of a problem by those members who (1) belonged to less cohesive groups, (2) perceived poor supervision in their work group, (3) had been assigned to their work group for over two years, (4) belonged to groups with more than 25 percent women, (5) worked in nontraditional jobs requiring strength, and (6) were pregnant or had a pregnant spouse. These and other findings are discussed.

**DESCRIPTORS:** \*Perception(Psychology), \*Pregnancy, \*Jobs, \*Air Force Personnel, Cohesion, Behavior, Group Dynamics, Enlisted Personnel, Surveys, Strength(Physiology), Work, Active Duty, Physical Fitness, Women, Stress(Physiology), Theses

**IDENTIFIERS:** Individual Differences

**FIELDS AND GROUPS:** 5/8, 5/9

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**AD NUMBER:** A174578

**CORPORATE AUTHOR:** Air Force Inst Of Tech Wright-Patterson AFB Oh School Of Systems And Logistics

**UNCLASSIFIED TITLE:** An Investigation Of The Health Practices, Attitudes, And Perceptions Of Usaf Military And Civilian Personnel.

**PERSONAL AUTHORS:** Vogel, Russell A. ;

**REPORT DATE:** Sep, 1986

**PAGINATION:** 162p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Afit/Gsm/Lsa/86s-20

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This investigation examined the health practices, attitudes and perceptions of headquarters air force logistics command military and civilian personnel. Six health practices were studied and comparisons between each group were made. The specific health practices include (1) smoking, (2) eating breakfast, (3) body weight, (4) alcohol consumption, (5) strenuous physical activity and (6) hours of sleep. In addition, employees' attitudes and perceptions concerning air force health promotion efforts and activities were measured and reported. Demographic variables of hq afllc personnel were also collected and presented. Data collection was accomplished via a survey questionnaire. Questions on health practices, attitudes and perceptions were derived from the 1977 usaf health survey and a draft usaf health promotion program questionnaire. Results of the study concerning health practices indicate fewer military personnel smoke cigarettes than civilian, military members eat breakfast less often than civilians, over one- half of the personnel consider themselves overweight with military members being closer to their ideal weight, alcohol consumption among military members was more frequent but less intense than civilian

personnel, military members get more strenuous physical exercise than civilians and civilians get more sleep than military.

**DESCRIPTORS:**\*Health,\*Attitudes(Psychology),\*Perception(Psychology),\*Air Force Personnel, Military Personnel, Civilian Personnel, Health Surveys, Public Health, Physical Fitness, Preventive Medicine, Alcohol Consumption, Tobacco Smoking, Food Consumption, Body Weight, Sleep, Exercise(Physiology), Strength(Physiology), Theses  
**FIELDS AND GROUPS:** 5/8, 5/9, 6/4

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**AD NUMBER:** A173029

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Influence Of Atropine On Physical Performance In The Heat,

**PERSONAL AUTHORS:** Fitzgerald,Patricia I. ;Knapik,Joseph J. ;Daniels, William L.

;Vogel,James A. ;Joyce,Brendan E. ;

**REPORT DATE:** May, 1986

**PAGINATION:** 58p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T16-86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Atropine is the antidote of choice used in the treatment of exposure to cholinesterase inhibiting substances. To study the effects of intramuscular injection of atropine on static and dynamic muscular strength and endurance as well as performance and learning on a gross motor task (gmpt), a multiple dose (o) (saline), 0.5, 1.0 and 2.0 mg), double blind design was utilized. Initially, 7 male volunteers were exposed to 4 days of treadmill walking (3 mph) for 2 hours each day in a hot, dry (40 c, 30% rh) environment to develop a state of partial acclimatization. This was followed by a series of similar exposures on alternate days. Muscle strength, gmpt and rectal temperature measurements were obtained 3- 4 h subsequent to the im injection in the same environmental conditions. No significant changes ( $p > .05$ ) were found using a one way repeated measures anova comparing the 9 test days. Significant ( $p < .05$ ) changes across test days were found for maximal handgrip strength, average torque of the elbow flexors at 30 deg sec and rectal temperature. The slope of the gmpt performance curve over the 9 test days indicated that there was a learning or familiarization effect. The same test given to a control group in a thermoneutral environment showed gradual increases in performance from day 1 to 7, apparently plateauing at day 8. Motor performance and motor learning were significantly decremented in the hot, dry environment combined with atropine compared to the thermoneutral environment without atropine.

**DESCRIPTORS:**\*Atropine,\*Performance(Human),\*Heat Stress(Physiology),\*Heat Tolerance, Acclimatization, Body Temperature, Cholinesterase, Control, Dynamics, Intramuscular Injections, Learning, Muscles, Rectum, Strength(Physiology), Torque, Treadmills, Walking, Endurance(Physiology), Motor Reactions, Physical Fitness

**FIELDS AND GROUPS:** 6/10, 6/15

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**AD NUMBER:** A172752

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Body Composition And Muscle Performance Aspects Of The 1985 Cffs (Combat Field Feeding System) Test,

**PERSONAL AUTHORS:** Teves, Marilyn A. ; Vogel, James A. ; Carlson, Dawn E. ; Schnakenberg, David D. ;

**REPORT DATE:** Apr, 1986

**PAGINATION:** 51p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-12/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** A new combat field feeding system (cffs) has been developed to provide soldiers with one to two hot meals at a minimal labor cost. The tray pack ration (t-ration) which requires no preparation or refrigeration and needs only to be heated is the ration under examination. Soldiers were tested before, during and after a 44 days field exercise to compare the t-ration to various combinations of existing feeding systems. Body composition and muscle strength and endurance were tested before and at days 1, 20 and 24 of the scenario. Skinfold and circumference techniques were used to estimate body composition. Isometric handgrip snf 38 cm upright pull and maximum lift capacity were the strength measures collected. Muscular endurance was measured as holding time at 60% maximal handgrip strength. No significant differences were found between diet groups. Results showed an initial decrease in weight which tended to recover over time. This decrease was almost wholly accounted for by a decrease in percent body fat of 1.5% and 2.5% in men and women respectively. While no changes were found in arm muscle volume, women actually showed an increase in fat free mass. 38 cm upright pull increased across time in both men and women. None of the other strength or endurance measures changed significantly over time. It was concluded that consumption of the new cffs for up to 44 days did not have an adverse impact upon body composition, muscular strength or endurance.

**DESCRIPTORS:** \*Military Rations, \*Muscles, Strength(Physiology), Endurance(Physiology), Performance Tests, Army Personnel, Diet, Human Body, Physical Fitness, Exercise(Physiology), Fats, Field Army, Trays, Meals, Field Tests

**IDENTIFIERS:** Mre(Meals Ready To Eat), Cffs(Combat Field Feeding System), Tray Pack Rations, Hot Meals, Body Fat, T Rations, Human Body Composition

**FIELDS AND GROUPS:** 5/9, 6/4, 6/8

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**AD NUMBER:** A171020

**CORPORATE AUTHOR:** Naval Submarine Medical Research Lab Groton Ct

**UNCLASSIFIED TITLE:** Physical Fitness In A Submarine Community As Determined By The U.S. Navy Health And Physical Readiness Test.

**PERSONAL AUTHORS:** Bennett, B. L. ;

**REPORT DATE:** May 06, 1986

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Nsmrl-1074

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study was conducted to test the hypothesis that personnel assigned to submarine duty would display less physical fitness as compared to shore based personnel. A message was submitted to all naval activities at a naval submarine base requesting individual test scores from the annual health and physical readiness (h&pr) test. The results from the statistical analysis showed that the majority of personnel in both populations were classified as good, which is an average level of physical fitness as determined by the navy's

fitness classification table. One percent of both populations were classified as outstanding and approximately ten percent failed to meet the minimum physical fitness requirements. A body fat value greater than 22 percent was the cause for the majority of test failures. In conclusion, the results of the analysis of h&pr data do not support the widely held belief that submarine personnel are less physical fit than their shore based counterparts. (author)

**DESCRIPTORS:**\*Physical Fitness,\*Naval Personnel,\*Submarine Personnel, Health, Naval Training, Military Requirements, Statistical Data, Population, Stress(Physiology), Operational Readiness, Job Analysis

**IDENTIFIERS:** Pe62758n, Wu0004

**FIELDS AND GROUPS:** 5/6, 5/9

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**AD NUMBER:** A170533

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Self-Paced Heat Acclimation Procedures,

**PERSONAL AUTHORS:** Armstrong, Lawrence E. ;Hubbard, Roger W. ;Deluca, Jane P. ;Christensen, Elaine L. ;

**REPORT DATE:** Mar, 1986

**PAGINATION:** 39p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-8/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this investigation was to evaluate the effectiveness of self-paced heat acclimation (spha) procedures. Fourteen males performed 100 min of intermittent exercise during 9 spha work-rest cycles, on eight days. Exercise consisted of 8.279 p or - 0.527 to 9.799 + or - 0.433 km of treadmill running per day. Spha trials were effective in improving heat tolerance in that significant ( $p < .05$ ) reductions were observed (day 1 vs day 8) in final heart rate (hr), delta hr, final rectal temperatures (tre), delta tre, final mean weighted skin temperature (tsk), and delta tsk. Resting plasma volume expanded significantly ( $p < .05$ ) from day 1 to day 4, but sweat rate was unchanged. Group mean exercise intensities and ratings of perceived exertion were not statistically different from days 2 - 7, let the number of trials terminate because subjects exceeded hr and tre safety limits (22 out of 112 trials) declined during heat acclimation (days 1-4 = 16, days 5-8 = 6). Symptoms of heat illness (piloerection, chills, dizziness, vomiting) were observed in 16.1% of all trials; 11 out of 14 subjects (78.6%) experienced one or more of these symptoms during spha trials.

**DESCRIPTORS:**\*Heat Stress(Physiology),\*Acclimatization,\*Endurance(Physiology), Physical Fitness, Exposure(Physiology), Heat Tolerance, Heart Rate, Body Temperature, Sweat Glands, Casualties, Military Exercises, Army Personnel, Army Training, Recruits, Illness

**IDENTIFIERS:** Rectal Temperature, Pe62777a, As879

**FIELDS AND GROUPS:** 6/10

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**AD NUMBER:** A170420

**CORPORATE AUTHOR:** School Of Aerospace Medicine Brooks AFB Tx

**UNCLASSIFIED TITLE:** Simulated Aerial Combat Maneuvering Tolerance And Physical Conditioning. Current Status.

**PERSONAL AUTHORS:** Burton, Russell R. ;Whinnery, James E. ;Forster, Estrella M. ;

**REPORT DATE:** Jul, 1986

**PAGINATION:** 4p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usafsam-Tr-85-101

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In Aviation, Space And Environmental Medicine, V57 P712-714 Jul 86.

**ABSTRACT:** The role of anaerobic metabolism in +gz duration tolerance was measured using venous blood lactate concentrations before g exposure and after subjects had been fatigued from exposure for one of several levels of g--low (4.5 g) sustained g (lsg); high (7-9 g) sustained g (hsg); and simulated aerial combat maneuver (sacm) of 4.5/7 g levels. A mean + or - se blood lactate for 6 subjects fatigued from lsg was 29.8 + or - 4.0 mg%. Four subjects fatigued from hsg had blood lactates of 42.4 + or - 3.2 mg%, and six had blood lactates of 46.7 + or - 7.2 mg% from the sacm. Blood lactates appeared to correlate directly (on a group basis) with maximum heart rates found during g exposures. Six subjects exposed to 8 or 9 g for 10 s or less demonstrated an anaerobic lactate capacity. These g findings were related to fatigue produced with isometric muscle contraction in physiologic studies conducted at 1 g. We concluded that anaerobic metabolism and isometric exercise physiology are directly related to duration tolerances of fatigue at all levels of +gz.

**DESCRIPTORS:** \*Acceleration Tolerance, \*Physical Fitness, \*Flight Training, Anaerobic Processes, Aerobic Processes, Fatigue(Physiology), Aerial Warfare, Flight Maneuvers, Performance(Human), Metabolism, Lactates, Blood Volume, Exercise(Physiology), Strength(Physiology), Reprints

**IDENTIFIERS:** G-Tolerance, Physical Conditioning, Pe62202f, Wuusafsam

**FIELDS AND GROUPS:** 5/6, 6/4

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**AD NUMBER:** A169672

**CORPORATE AUTHOR:** Army Research Inst For The Behavioral And Social Sciences  
Alexandria Va

**UNCLASSIFIED TITLE:** An Evaluation Of Physical Readiness Training In Armor One Station Unit Training.

**PERSONAL AUTHORS:** Graham, Scott E. ; Black, Barbara A. ; Kersey, Douglas ;

**REPORT DATE:** Aug, 1984

**PAGINATION:** 36p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Ari-Rr-1375

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This research effort compared the effectiveness of a recently developed physical readiness training program with the standard readiness training. The existing program had soldiers do as many pushups or situps as possible in 2 minutes on alternating days. The new Kersey program, which is based on behavior modification principles, had each soldier repeat a gradually increasing number of sets of pushups, with each set being 50% of his maximum number. Soldiers also recorded their own performance data individually. Soldiers who used the Kersey program showed greater increases in upper body strength. When the program was implemented brigade-wide, there was a substantial decrease in the number of failures on the Army physical readiness test (APRT). The report also examines the relationship of a variety of demographic and performance factors to physical fitness performance, as well as discussing the relative importance of the pushup, situp, and 2-mile run subtests in the APRT.



Keywords: armor; army training; behavior; modification; muscles; performand (human); physical fitness; predictions; training.

**DESCRIPTORS:**\*Army Training,\*Physical Fitness, Armor, Army Equipment, Army Personnel, Bodies, Muscles, Operational Readiness, Performance(Human), Standardization, Strength(General), Test Methods, Training

**FIELDS AND GROUPS:** 5/6, 5/9

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**AD NUMBER:** A167928

**CORPORATE AUTHOR:** Military Academy West Point Ny Office Of Institutional Research

**UNCLASSIFIED TITLE:** Trends In Admission Variables Through The Class Of 1989,

**PERSONAL AUTHORS:** Wright,Jack B. ;

**REPORT DATE:** Mar, 1986

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usma-Oir-86-003

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The united states military academy uses the whole candidate concept in the selection of candidates for admission. This concept encompasses three broad areas: academics, leadership potential, and physical condition and aptitude. This report compares the pre-usma performance of members of the class of 1989 with previous classes in these three areas. The academic qualifications of cadets place them in the top 10-15% of college bound high school seniors. The scholastic aptitude test (sat) scores for the class of 1989 have recovered to equal the class of 1980 for sat-math scores while the sat-verbal score is the highest over the previous nine years. For all college-bound high school seniors, the national average for sat-math is the highest over the previous nine years, while the sat-verbal score is the second highest over a ten year period. The physical aptitude exam scores of male cadets have increased steadily over the past four years after a period of stability, while the scores of female cadets have increased by thirteen points over the class of 1988 to a four year high of 533. Trend comparisons of the leadership potential score for the class of 1989 show an increase over the class of 1988.

**DESCRIPTORS:**\*Cadets,\*Selection,\*United States Military Academy, Qualifications, Schools, Leadership, Aptitudes, Females, Scoring, Patterns, Schools, Aptitude Tests, Admittance, Physical Fitness

**FIELDS AND GROUPS:** 5/6

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**AD NUMBER:** A167636

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Upper And Lower Body Anerobic Power Comparison Between Biathletes And Control Subjects,

**PERSONAL AUTHORS:** Patton,J. F. ;Duggan,A. ;

**REPORT DATE:** Apr, 1986

**PAGINATION:** 21p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M25/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study compared power outputs (po) from both the upper body (ub) and lower body (lb) wingate tests of anaerobic power between biathletes and control subjects. Ten

biathletes (b) selected by the british ski federation for potential assignment to the british team and 13 control (c) subjects cranked or pedalled the same bodyguard ergometer at maximal rpm's for 30s against resistances of 2.94 and 4.41 joules/rev/kg body weight (bw), respectively. Po's were calculated in watts (w) and expressed as peak power (pp, highest 5s interval), mean power (mp, the mean for 30s), and power decrease (pd, difference between pp and lowest 5s po divided by time). Absolute pp and mp for both ub and lb did not differ between groups. A comparison of po's made relative to bw showed b to have higher values than c: 11.25 vs 10.25 w/kg for lb pp ( $p<.01$ ) and 9.21 vs 7.96 w/kg for lb mp ( $p<.001$ ). Similar po relationships were found for the ub where pp and mp values were higher for b than c: 7.61 vs 6.76 w/kg ( $p<.01$ ) and 6.07 vs 4.95 w/kg ( $p<.001$ ), respectively. Concomitantly, pd was lower in b than c for both the ub ( $p<.01$ ) and lb ( $p<.001$ ). These data show that significant differences exist in the anaerobic performance of aerobically trained athletes compared to subjects who are not highly trained and that these differences are reflected in the musculature of the ub as well as the legs.

**DESCRIPTORS:** \*Anaerobic Processes, \*Exercise(Physiology), \*Physical Fitness, Ergometers, Great Britain, Legs, Mean, Muscles, Output, Peak Power, Power, Power Supplies, Skis, Teams(Personnel), Army Training, Human Body, Body Weight

**IDENTIFIERS:** Aerobic Exercises

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A166696

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** A Review Of Physical Fitness As It Pertains To The Military Services.

**PERSONAL AUTHORS:** Vogel, James A. ;

**REPORT DATE:** Jul, 1985

**PAGINATION:** 70p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T14/85

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This review describes the aspects of physical fitness that are pertinent to the military: muscular strength (peak power), strength endurance (anaerobic power capacity), aerobic capacity and body composition. Methodologies for the assessment of each component are described in detail for various applications. An extensive compilation of normative values from western military forces is presented for each component. (author)

**DESCRIPTORS:** \*Physical Fitness, Aerobic Processes, Anaerobic Processes, Capacity(Quantity), Endurance(General), Human Body, Military Forces(United States), Muscles, Peak Power, Power, Strength(General), Strength(Physiology)

**IDENTIFIERS:** Pe62772a, As879

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A166582

**CORPORATE AUTHOR:** Army Concepts Analysis Agency Bethesda Md

**UNCLASSIFIED TITLE:** Evaluation Of The Military Entrance Physical Strength Capacity Test (E-Mepscat).

**PERSONAL AUTHORS:** Van Nostrand, Sally J. ; Thompson, Marcia E. ; Captain, George J. ;

**REPORT DATE:** Oct, 1985

**PAGINATION:** 143p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Caa-Sr-85-23

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This study evaluated the effectiveness of the military entrance physical strength capacity test (mepscat) during its first year of implementation. Mepscat is a mandatory test for enlistment processing. Its results are used to encourage soldiers to enlist in those military occupational specialties (mos) for which they meet the physical demands requirements. Although the data upon which the study was based was necessarily limited, it appears the mepscat program is contributing to a better match between physical capabilities and job demands.

**DESCRIPTORS:** \*Job Analysis, \*Physical Fitness, Army Personnel, Jobs, Military Applications, Processing, Recruiting, Specialization, Strength(General), Strength(Physiology), Military Requirements

**IDENTIFIERS:** Military Occupational Specialists

**FIELDS AND GROUPS:** 5/9

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**AD NUMBER:** A166557

**CORPORATE AUTHOR:** Advisory Group For Aerospace Research And Development Neuilly-Sur-Seine (France)

**UNCLASSIFIED TITLE:** Medical Selection And Physiological Training Of Future Fighter Aircrew. Conference Proceedings Of The Aerospace Medical Panel Symposium Held In Athens, Greece On 25-26 April 1985.

**REPORT DATE:** Dec, 1985

**PAGINATION:** 148p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Agard-Cp-396

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** See Also Supplement, AD-C038 495.

**ABSTRACT:** The symposium comprised seven sessions as follows: (1) performance of future fighter aircraft, which consisted of two papers describing those features of future fighter aircraft such as the mirage 2000, the f-16, the f-18, and the tornado. (2) medical selection: general, comprised two papers which presented an overview present medical selection procedures with emphasis on those used for fighter aircrew. (3) medical selection: cardiovascular aspects, covered the detection and prediction of cardiovascular disease and the cardiovascular effects of high sustained acceleration. It included a very valuable presentation the way ahead with respect to these aspects of the selection and retention of the pilots of high performance aircraft. (4) medical selection: vision aspects, reviewed important aspects of vision, in particular target acquisition and use of coloured displays, and the vision standards which are required of pilots operating high performance fighter aircraft. (5) medical selection: the spinal column, considered the hazards to the neck and the cervical portion of the spinal cord produced by the high acceleration environment and discussed methods of detection and avoidance of cervical vertebral disease. (6) medical selection and training: physical fitness, dealt with the assessment of physical fitness in aircrew and its relation to performance in flight. (7) physiological training which should be provided to aircrew with emphasis upon those who are to operate high performance combat aircraft.

**DESCRIPTORS:**\*Flight Crews,\*Flight Training,\*Personnel Selection,\*Aerospace Medicine, Personnel Retention, Aerospace Environment, Cardiovascular Diseases, Cardiovascular System, High Acceleration, Diseases, Medicine, Military Aircraft, Fighter Aircraft, Physical Fitness, Physiology, Pilots, Spinal Column, Spinal Cord, Standards, Symposia, Test And Evaluation, Vision

**FIELDS AND GROUPS:** 5/6, 5/9, 6/5

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**AD NUMBER:** A166521

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Metabolic Changes Following Eccentric Exercise In Trained And Untrained Men,

**PERSONAL AUTHORS:** Evans,W. J. ;Meredith,C. N. ;Cannon,J. G. ; Dinarello,C. A. ;Frontera,W. R. ;

**REPORT DATE:**, 1986

**PAGINATION:** 24p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M-20/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The effects of one 45 minute bout of high intensity eccentric exercise (250 watts) were studied in 4 male runners and 5 untrained men. Plasma creatine kinase (ck) activity in these runners was high ( $p < 0.001$ ) than in the untrained men before exercise and peaked at 207 iu/ml one day after exercise, while in untrained men the maximum was 2143 iu/ml five days after exercise. Plasma interleukin-1 (il-1) in the trained men was also higher ( $p < 0.001$ ) than in the untrained men before exercise but did not significantly increase after exercise. In the untrained men, il-1 was significantly elevated 3 hours after exercise ( $p < 0.001$ ). In the untrained group only, 24-hour urines were collected before and after exercise while the men consumed a meat-free diet. Urinary 3- methyl-histidine/creatinine in the untrained group rose significantly from 126 umol/g before exercise to 180 umol/g ten days after exercise. The results suggest that in untrained men, eccentric exercise leads to a metabolic response indicative of delayed muscle damage. Regularly performed long distance running was associated with chronically elevated plasma il-1 levels and serum ck activities without acute increases after an eccentric exercise bout.

**DESCRIPTORS:**\*Creatine Phosphokinase,\*Metabolism,\*Exercise(Physiology), Diet, Urine, Creatinine, Stress(Physiology), Males, Physical Fitness, Long Range(Distance), Response(Biology), Training

**IDENTIFIERS:** Interleukin 1, Running

**FIELDS AND GROUPS:** 5/9, 6/4, 6/10

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**AD NUMBER:** A165386

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Upper-Body Exercise Performance: Comparison Between Women And Men,

**PERSONAL AUTHORS:** Falkel,Jeffrey E. ;Sawka,Michael N. ;Levine, Leslie ;Pimental,Nancy A. ;Pandolf,Kent B. ;

**REPORT DATE:**, 1986

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M-26/84

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In Ergonomics, V29 N1 P145-154 1986. Supersedes AD-A142 330.

**ABSTRACT:** This study compared upper-body (arm crank) aerobic fitness for a group of women and men matched for lower-body (cycle) aerobic fitness and also examined the influence selected physiological factors had on upper-body exercise performance. The components of upper-body exercise studied included maximal power output, peak oxygen uptake, elbow isokinetic strength and endurance, arm volume and endurance time at 80% arm crank peak vo2. During maximal effort upper-body exercise, there was no difference in peak vo2 between the genders despite the men's significantly greater strength, arm volume and po max. Likewise, there was no difference in upper body endurance time at 80% peak vo2 between the genders. These data indicated that women are not at a disadvantage in performing aerobic upper-body exercise, skeletal muscle strength provides a relatively minor influence on both maximal effort and prolonged upper-body exercise; and individuals can perform prolonged upper-body exercise at relative intensities greater than that needed to elicit an aerobic training effect. (reprints)

**DESCRIPTORS:** \*Aerobic Processes, \*Physical

Fitness, \*Strength (Physiology), \*Exercise (Physiology), Bodies, Cycles, Endurance (General), Muscles, Musculoskeletal System, Physiology, Reprints, Time, Training, Women, Females, Males, Comparison

**IDENTIFIERS:** Pe62777a, As879, Wu127

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A165089

**CORPORATE AUTHOR:** Army Chief Of Staff Washington Dc Noncommissioned Officer Professional Development Study Group

**UNCLASSIFIED TITLE:** Noncommissioned Officer Professional Development Study (Ncopds). Volume 1.

**PERSONAL AUTHORS:** Bernath, Clifford H. ;

**REPORT DATE:** Feb 14, 1986

**PAGINATION:** 237p Media Cost: \$ 11.00 Price Code: Ac

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The objective of the nco professional development study (ncopds) was to evaluate nco professional development. The study group defined professional development as the sum of training, education and experiences. The study group concluded that the army's requirements of the nco corps are: (1) job proficiency, (2) mos competency, (3) physical fitness and military bearing, (4) basic educational skills, (5) leadership skills, (6) training skills, (7) commitment to professional values and attributes, and (8) responsibility and accountability for actions. The study group concluded that the components for an nco professional development system are in place and functioning well. Some of the systems require fine-tuning. Forty-five recommendations to improve nco professional development fall into the following categories: (1) nco professional development philosophy, (2) noncommissioned officer education system, (3) civilian education, (4) nco professional development program, (5) assignments, (6) promotions, (7) evaluation, (8) reclassification, (9) individual training evaluation program, (10) reserve components, and (11) integration.

**DESCRIPTORS:**\*Education,\*Noncommissioned Officers,\*Training, Accountability, Civilian Personnel, Education, Jobs, Proficiency, Military Applications, Military Reserves, Skills, Training, Philosophy, Physical Fitness, Test And Evaluation

**FIELDS AND GROUPS:** 5/6

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**AD NUMBER:** A164898

**CORPORATE AUTHOR:** Army Health Care Studies And Clinical Investigation Activity Fort Sam Houston Tx Hcs Div

**UNCLASSIFIED TITLE:** Evaluation Of The Army Physical Training And Weight Control Programs. Part 3. The Revised Survey.

**PERSONAL AUTHORS:** King,James M. ;O'brien,Donald E. ;Mangelsdorff, David A. ;

**REPORT DATE:** Jan, 1986

**PAGINATION:** 39p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Hcsd-86-002

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** See Also Part 1, AD-A139 877.

**ABSTRACT:** This report presents an improved survey based on our prior experience, and offers a suggested methodology for evaluating physical fitness programs. The revised survey retains sections dealing with exercise frequency, intensity, and duration, organizational support for exercise, dealing with exercise frequency, intensity, and duration, organizational support for exercise, exercise injuries, and attitudes toward fitness and exercise. Attitudes toward fitness are a major determinant of long- term adherence to a fitness program. We have successfully tested earlier versions of this survey on students in the amedd officer advanced course and advanced ncoes course. Based on our analyses of these data, the length of the instrument was reduced from 205 items to 89 items. We feel that the revised instrument will capture comparable information but will be much more acceptable to the respondents. The survey instrument is available from the authors on cpt format 8 floppy discs, ms-dos format 5 1/4 floppy disks, and cp/ m format 5 1/4 floppy disks. Data on personal history, strength, stamina, flexibility, and body fat percentage should also be collected as part of a comprehensive fitness evaluation. The methodology for evaluating physical fitness outline in this report is intended for field use with large groups of personnel. Thus, considerable effort has been expended to develop and/or identify techniques which can be employed quickly in applied settings. We feel that this methodology could be successfully applied to both longitudinal and to cross sectional studies. Post fitness coordinators and appropriate medical treatment facility personnel can provide valuable assistance in conducting these studies. (author)

**DESCRIPTORS:**\*Physical Fitness,\*Army Training,\*Exercise(Physiology), Control, Disks, Instrumentation, Length, Organizations, Personnel, Adipose Tissue, Facilities, Clinical Medicine, Military Medicine, Students, Surveys, Training, Weight

**FIELDS AND GROUPS:** 5/6, 5/9, 6/10

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**AD NUMBER:** A164814

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Upper To Lower Body Muscular Strength And Endurance Ratios For Women And Men,

**PERSONAL AUTHORS:** Falkel,Jeffrey E. ;Sawka,Michael N. ;Levine, Leslie ;Pandolf,Kent B.

**REPORT DATE:**, 1985

**PAGINATION:** 12p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M-33/84

**REPORT CLASSIFICATION:** UNCLASSIFIED

**SUPPLEMENTARY NOTE:** Pub. In Ergonomics, V28 N12 P1661-1670 1985. Supersedes AD-A143 821.

**ABSTRACT:** This study examined possible gender differences for relative upper (elbow) to lower (knee) body strength and endurance, as well as relative flexion to extension strength and endurance. Seven women and nine men who were matched for both upper and lower body aerobic power were tested on an isokinetic strength instrument. Absolute isokinetic strength was lower ( $p < 0.01$ ) for the women than the men for all measurements. When strength was expressed per lean body weight, the women were weaker ( $p < 0.05$ ) only for elbow flexion strength. The women had a lower ( $p < 0.05$ ) upper to lower body strength ratio for flexion, but not for extension. There were also no difference ( $p > 0.05$ ) in isokinetic endurance fatigue decrements, or upper to lower body endurance ratios between genders. These data indicated that there were differences in absolute strength between the genders, but strength per lean body weight, as well as upper to lower body ratios for strength and endurance were similar for both genders. It was recommended that aerobic fitness and level of training be taken into account when strength and endurance were compared between the genders.

**DESCRIPTORS:**\*Physical Fitness,\*Strength(Physiology),\*Endurance(Physiology), Instrumentation, Kinetics, Low Strength, Measurement, Body Weight, Muscles, Ratios, Training, Women, Joints(Anatomy), Bending, Human Body, Males, Reprints

**IDENTIFIERS:** Isokinetics

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A163110

**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Changes In Fitness And Shipboard Task Performance Following Circuit Weight Training Programs Featuring Continuous Or Interval Running.

**PERSONAL AUTHORS:** Marcinik,E. J. ;Hodgdon,J. A. ;Englund,C. E. ;O' Brien,J. J. ;

**REPORT DATE:** Aug, 1985

**PAGINATION:** 18p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Navhlthrschc-85-33

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** This investigation compared physical fitness and work performance changes following participation in circuit weight training regimens featuring either interval or continuous running programs. Results indicated that participation in the circuit weight training/run regimes was associated with differential changes in fitness but not shipboard work performance. Furthermore, the association between training induced fitness gains and relative improvement in job performance appeared to be specific to the task modelled. Important predictors of criterion job performance included measures of both upper and lower torso muscular strength. Regression analyses yielded the following prediction

equation: composite shipboard performance(s) = 194.15097-1.59492 (arm curl)-, 18369 (leg press)  $r=0.74$ . Keywords: psychological data; naval personnel.

**DESCRIPTORS:** \*Job Analysis, \*Physical Fitness, Naval Training, Ship Personnel, Muscles, Strength(Physiology), Circuits, Training, Weight, Jobs, Predictions, Regression Analysis, Performance(Human), Intervals, Naval Personnel, Shipboard, Work

**IDENTIFIERS:** Running, Pe63706n, Wu1050

**FIELDS AND GROUPS:** 5/6, 5/9, 12/3

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**AD NUMBER:** A162826

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** An Evaluation Of Tests Of Anaerobic Power,

**PERSONAL AUTHORS:** Patton, John F. ; Duggan, Andrew ;

**REPORT DATE:** Dec, 1985

**PAGINATION:** 22p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-M7/86

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The objectives of this study were to examine the relationship between two laboratory tests of anaerobic power (anp) and to compare these tests to field measures of anp. Fifteen soldiers, aged 20-34 yrs, performed: 1) a 30s maximal cycle ergometer test (wingate test, wt); 2) a 60s isokinetic knee extension test (isokinetic endurance test, iet); 3) a 50m spring; 4) a 200m sprint; and 5) the margaria stairclimb test. Significant correlations ranging from 0.52 to 0.76 were found between the wt and iet for peak and mean values of power and torque, respectively. Indices from both these tests also correlated significantly with the field tests of anp. The best single index was mean power from the wt which had correlations of -0.79, -0.82, and 0.74 with the 50m and 200m sprint times and the margaria test, respectively. The data suggest that both the wt and iet represent valid laboratory tests for evaluating high-intensity short-term exercise in which the muscle is primarily dependent upon anaerobic processes for energy release. (author)

**DESCRIPTORS:** \*Anaerobic Processes, \*Physical Fitness, \*Exercise(Physiology), Army Personnel, Cyclic Tests, Endurance(General), Energy Transfer, Ergometers, Field Tests, Indexes, Kinetics, Laboratory Tests, Torque, Army Training, Short Range(Time)

**IDENTIFIERS:** Aerobic Exercises

**FIELDS AND GROUPS:** 5/9, 6/4

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**AD NUMBER:** A162805

**CORPORATE AUTHOR:** Army Research Inst Of Environmental Medicine Natick Ma

**UNCLASSIFIED TITLE:** Performance On Selected Candidate Screening Test Procedures Before And After Army Basic And Advanced Individual Training.

**PERSONAL AUTHORS:** Teves, Marilyn A. ; Wright, James E. ; Vogel, James A. ;

**REPORT DATE:** Jun, 1985

**PAGINATION:** 73p Media Cost: \$ 6.00 Price Code: Aa

**REPORT NUMBER:** Usariem-T-13/85

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** The purpose of this project was to evaluate a strength screening procedure to be used in military entrance processing stations (meps) for matching the strength capacity of



recruits with the strength demands of military occupational specialties (mos). Prior to the study, a task analysis was performed and all army mos were fit into a 5 category modified department of labor classification system based on lifting requirements. In order to determine the best single screening test for lifting ability, five candidate test items were performed by 1,984 army recruits prior to basic training (bt). The tests, chosen for face validity, proven reliability, and historical precedence were isometric handgrip isometric 38 cm upright pull, incremental dynamic lift, skinfold determination of body composition, and a submaximal prediction of maximal oxygen uptake. At the end of advanced individual training (ait) 970 of the same subjects were re-tested on the candidate test items, and on a series of job related criterion performance tasks (cpts). Candidate test item norms for male and female soldiers are presented for pre and post bt, and for post-ait. The two training phases had a significant positive effect on muscle strength, aerobic fitness and body composition. The incremental dynamic lift to 152 cm was found to be the best predictor of cpt performance and was selected for implementation as the military entrance physical strength capacity test (mepscat). Keywords: maximal lift capacity, incremental dynamic lift, isometric handgrip, predicted vo(2) max.

**DESCRIPTORS:** \*Physical Fitness, \*Strength(Physiology), Women, Army Training, Personnel Selection, Individualized Training, Performance(Human), Performance Tests, Hands, Military Training, Test Methods, Army Personnel, Females, Classification, Labor, Lift, Army, Human Body, Determination, Dynamics, Lift, Requirements, Jobs, Military Applications, Specialization, Oxygen Consumption, Predictions, Recruits, Muscles, Processing, Stations, Reliability

**IDENTIFIERS:** Basic Training, Meps(Military Entrance Processing Stations), Military Occupational Specialities, Handgrip Tests, Pe62777a, As879

**FIELDS AND GROUPS:** 5/6, 5/9

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**AD NUMBER:** A162781

**CORPORATE AUTHOR:** Navy Personnel Research And Development Center San Diego Ca  
Manpower And Personnel Lab

**UNCLASSIFIED TITLE:** Documentation Of Muscularly Demanding Job Tasks And Validation  
Of An Occupational Strength Test Battery (Stb).

**PERSONAL AUTHORS:** Robertson,David W. ;Trent,Thomas ;

**REPORT DATE:** Nov, 1985

**PAGINATION:** 101p Media Cost: \$ 11.00 Price Code: Ab

**REPORT NUMBER:** Mpl-Tn-86-1

**REPORT CLASSIFICATION:** UNCLASSIFIED

**ABSTRACT:** Many shipboard duties and the specific duties of some navy jobs require great physical strength. However, navy enlisted selection and classification decisions do not presently take these strength requirements into account. Without methods to measure the physical ability of men and women to perform to specified strength standards, personnel may be assigned to jobs in which they cannot fully perform all tasks, or they may risk injury by attempting tasks beyond their strength. The objectives of this research were to (1) identify muscularly-demanding tasks, (2) develop a procedure to identify particular tasks and their performance measures as criteria for validation of a basic strength test battery (stb), (3) develop a procedure to determine task performance standards, and (4) develop a

procedure to determine the percentage of men or women excluded by these standards from entering a given muscularly demanding job. Recommendations and conclusions are listed.

**DESCRIPTORS:**\*Naval Personnel,\*Physical Fitness,\*Strength(Physiology),\*Personnel Selection, Classification, Decision Making, Enlisted Personnel, Jobs, Navy, Performance(Human), Requirements, Standards, Validation, Women, Wounds And Injuries, Military Requirements

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**CORPORATE AUTHOR:** Naval Health Research Center San Diego Ca

**UNCLASSIFIED TITLE:** Fitness Changes Of Naval Women Following Aerobic Based Programs Featuring Calisthenic Or Circuit Weight Training Exercises.

**PERSONAL AUTHORS:** Marcinik,E. J. ;Hodgdon,J. A. ;O'brien,J. J. ; Mittleman,K. ;

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**ABSTRACT:** Results of a pilot study showed an experimental aerobic/ circuit weight training program (a/cwt) effectively conditioned several separate components of fitness improving the overall physical condition of navy women. Findings of an investigation conducted at the recruit training command, orlando, fl showed standard aerobic/calisthenic (a/cal) training did not promote development of upper torso muscular strength or stamina. Aerobic/- circuit weight training at 70% of maximum determined strength was found to be superior to a/cal training in developing upper torso muscular strength. These findings suggest that circuit weight training is an efficient mode of conditioning muscular strength. Programs of this type may better physically prepare navy women for muscularly demanding emergency shipboard evolutions and aid women assigned to strength demanding occupations. (reprints).

**DESCRIPTORS:**\*Aerobic Processes,\*Physical Fitness,\*Naval Personnel,\*Females,\*Exercise(Physiology), Circuits, Human Body, Navy, Recruits, Reprints, Training, Weight, Women, Strength(Physiology)

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